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YOGA AND MENTAL HEALTH

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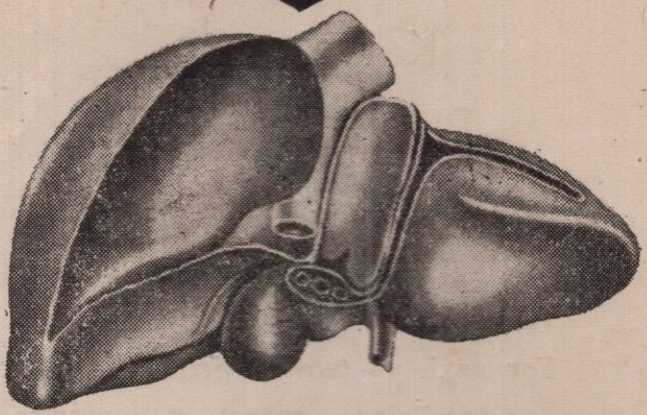

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Important Announcement

SPECIAL ISSUE ON PREVENTIVE CARDIOLOGY

The July-Sept. 1982 issue of "The Journal of Research and Education in Indian Medicine" will be special issue on "PREVENTIVE CARDIOLOGY".

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Jour. Res. Edu. Ind. Med. April-June. 1982.

EDITORIAL

YOGA FOR MENTAL HEALTH

Yoga is one of the fast reviving sciences which has received worldwide attention during recent years. This arousal of interest in Yoga appears largely for its health potentials. A study of the ancient concepts of Yoga in related classics would reveal that Yoga as initially conceived is essentially a spiritual discipline. It was developed in good old days to raise the level of Consciousness in an individual by way of continued *Sadhana* on a prescribed *path*. There was no design to develop Yoga as a health science, though practitioners of Yoga enjoyed good mental and physical health.

On the contrary, the assessment of the current trends indicates that Yoga has migrated substantially from a pure spiritual discipline to a scientific discipline, from a matter of individual *sadhana* to a subject of social interest and from a limited Indian art to an international science of global significance. Thus Yoga has developed fast in all its dimensions. But the central stream of revival and development of Yoga is in the direction of promotive health care.

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It would be seen that Yoga in ancient times was conceived as a scientific discipline and was added with appropriate technology for application of the same for human uplift. As also stated by Professor Anantharaman (Personal Communication) the expressions like '*Adhyatma Vidya*' and '*Yoga-Vidhi*' seen in *Kathopanisad* and '*Brahma Vidya*' and '*Yoga Sastra*' in *Bhagvadgita* indicate that Yoga was conceived in good old days as Science (*Vidya*)

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as well as Technology (*Vidhi*). As interpreted by him Yoga is the Science of Man in depth, is the Science of Total Man and is the Science of Human Possibilities. On the other hand Yoga is the Technology of Conscious Evolution, is the Technology of Self-Unfoldment and Personality Development. Thus unlike the approach of modern Science and Technology, Yoga is a much more comprehensive Science and Technology and deals with Matter, Energy and Consciousness.

However, in present times Yoga is approached by various persons with following aspirations viz., (1) *Swasthya* i. e. Yoga for positive health, (2) *Chikitsa* i. e. Yoga for Therapy, (3) *Siddhi* i. e., Yoga for Paranormal Powers and (4) *Prajna* i. e. Yoga for expansion of consciousness i. e., superconsciousness (the transcendental aspect of Yoga).

The main reason of the fast explosion of global interest in Yoga in recent years is the matching explosion of social stress in the western world resulting due to rapid urbanisation and industrial development. The modern affluent society is facing a great social stress and tension in life due to non-alliance to the law of nature by the modern life. Such a state of affairs has not only made the human life stressful but has also lead to the development of a number of newer diseases of psychological origin manifesting in the body as major psychosomatic diseases like hypertension, ischaemic heart disease, diabetes mellitus, peptic ulcer and similar many others. The modern medicine has utterly failed in prevention and treatment of this class of ailments. It is in this context that Yoga has emerged as a remedy for promotive, preventive and even curative care of psychosomatic disorders. Thus the central stream of research and development in Yoga is the evaluation of the mental health potentials of Yoga.

The mental health is an aspect of total health of an individual which is considered as a state of physical, mental and social well-being. Hence, one finds it difficult to define mental health as a separate entity. The main difficulty in defining mental health is due to the fact that mental health is a relative state The framework of mental health of an individual is relative to many allied factors including the social, moral and ethical norms of the society in which he or she is living, because the individual is the outcome of his environment.

Due to above limitations mental health is difficult to define. However, for practical purposes the mental health is usually defined as a state of emotional well-being. Hilgard & Atkinson rightly state that despite a lack of consensus in defining the normal personality, most psychologists would agree on the following qualities as indicative of good mental health. These characteristics do not distinguish sharply between the mentally healthy and the mentally ill; they represent traits that the normal person possesses to a greater degree than the individual diagnosed as abnormal :— 1. Efficient perception of reality, 2. Self-Knowledge, 3. Ability to exercise voluntary control over behaviour, 4. Self-esteem and acceptance, 5. Ability to form affectionate relationship and 6. Productivity.

It is presumed that the comprehensive practice of Yoga would impart above qualities to the personality of an aspirant. Besides, another important dimension of the effect of Yoga on mental health would be a reduction in the level of anxiety. Practice of Yoga helps an individual in coping with anxiety and thus makes the life comfortable and free from too much of anxiety and tension. Thus Yoga may be utilised as a promotive and preventive care for mental health. In addition, appropriate schedules of Yoga Therapy may be developed also as a method of curative treatment of early psychosomatic diseases.

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YOGA FOR MENTAL HEALTH AND ITS SIGNIFICANCE IN MODERN SOCIETY

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Significance of Yoga in mental health is being increasingly accepted. This is all the more important now, as with the stress and strain of present day life, mental diseases and other mental problems are on the increase. In the affluent countries, inspite of materialistic progress of a phenomenal nature, persons afflicted with mental problems are gradually increasing. It is thus felt, now, that the answer to all this does not reside in pure materialistic progress but the spiritual side of the individual should be explored to find out a suitable answer. Many of the mental problems and diseases such as neuroses, psychotic diseases or psychosomatic disorders arise as a result of thinking in wrong direction and/or as a result of stress, strain or maladjustment, specially in predisposed individuals. The question, therefore, arises whether it is possible to prevent or cure these disorders and thus restore them to normal health. Yoga teaches a person-how to control his thought processes. In Yoga Sutras of Patanjali "Yoga is defined as inhibition of the modification and working of the mind". When this is possible even for a short time, the mind gets refreshed and this ultimately helps towards attainment of sound mental health and even curing some of the early neurotic and psychosomatic disorders. The advanced case of psychosis may require more elaborate psychoanalytical and other treatment in addition to Yoga. Such a state of thought-lessness may be demonstrated on E. E. G. in terms of increasing Alpha waves. All the states of mind (consciousness) waking, sleeping, dreaming including meditating and deeply meditating, which is a state of tranquility with alertness can be demonstrated on E. E. G. by different wave patterns. Fuller details are given in the original text. Thus Yoga, which is a process of producing a tranquil but aware state of mind by meditation, definitely helps in attainment of sound mental health if practised regularly.

Significance of Yoga in mental health is being increasingly accepted and it is becoming popular. This is important because with the increasing stress and strain of present - day life, the mental diseases and other mental problems with allied diseases as a result of stress are on the increase. This is in spite of the fact that most of the infectious diseases and other communicable diseases are either controlled or wiped out in many of the so-called developed countries where phenomenal materialistic progress has been achieved, but even there, the mental diseases and allied problems are on the increase.[1] This picture

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is not so clearly visible in our country at present where infectious diseases and other physical ailments are still rampant but in the developed countries this trend is clearly visible although it is seen in our country also now, as stress and strain of modern life increase.

When one of the leading physicians of an advanced country was asked about the fate of medical profession when all the physical diseases and ailments are either controlled or wiped out, he promptly replied that the mental diseases and allied problems will be more than enough to maintain the profession.[2] In fact, it is now realised that even most of the so-called physical diseases have some degree of mental or psychological component and therefore every medical man now-a-days must get a thorough training in the understanding of mental problems and how these could be tackled. Even when one issues an ordinary fitness certificate, one mentions that the person is fit both physically and mentally. Therefore, the problem of mental health is equally important and in view of rapid increase of mental and allied problems its significance has all the more increased in the modern society.

Most of the mental problems are as a result of maladjustment and belong to the category of the so-called neuroses and these could be easily tackled or prevented if proper mental hygiene procedures are adopted.

The psychosis cases may require more elaborate procedures by a trained psychiatrist. Although the mental hygiene measures including Yoga may help some of these cases also, psychosomatic ailments like hypertension, peptic ulcer, chronic ulcerative colitis[2], bronchial asthma, rheumatoid arthritis, diabetes etc. may sometimes arise as a sesult of mental stress and thus in these diseases regular practice of suitable yogic exercises and other yogic and mental hygiene procedures may help such patients.

A man is the product of his body, mind and spirit. Everybody understands the physical body. The mind is understood in terms of consciousness but the word "spirit" is not understood or accepted by the scientific world except perhaps if one includes the so-called term subconscious or superconscious in this category. Psychologists and mental disease experts talk of the term subconscious when all the past memories of the individual which may be painful or pleasant are stored and which may be brought out by psychoanalysis technique. These past memories may be disturbing the mind of the individual in some cases and therefore psychotherapy procedures have to be adopted to tackle them. The term superconscious is still not accepted by the medical profession or scientific world and only the so-called adept "yogi" or a genuine savant who has experience of this, understands it.

Here comes "Yoga", the term which is derived from the root "*Yuj*" which means to join. The question therefore arises "to join with what ?". By gradual and persistent practice the individual consciousness (*Jivatma*) gets into touch with the universal consciousness (*Paramatma*). In the beginning, after a constant practice only a glimpse may be obtained but if the individual practises timely and regularly, he may advance further and ultimately merge in the universal consciousness. This is the ultimate aim of Yoga but is not easily realised by everybody, but some progress in this direction may help to solve many of the mental problems and make the person more happy and contented.

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Yoga as defined by Patanjali in his famous Sutras is "Inhibition of the modifications of the mind" (yogaścitta vṛtti nirodhah). In other words, it teaches the person how to control his thought - processes. In order to practise Yoga one has to resort to meditation by a special technique of thinking and understanding the process of thinking and this may lead to a quiet mind, peace and happiness.

In terms of normal brain waves pattern as seen in E. E. G. tracings we are all producing *beta*, *delta*, *alpha* and *theta* waves[3] depending on the state of our consciousness whether waking, sleeping, meditating or deeply meditating respectively.

In waking state, the beta brain wave frequency bands (Hertz) are of 13 to 26 cycles per second. In sleeping state, there are delta waves of 0 to 4 (cycles per second). In tranquility state of meditation, alpha waves appear of 8 to 13 (Hertz) and in deep meditation when the patient passes on to a creative level as a gateway to unconscious or superconscious, theta waves of 4 to 8 (Hertz) appear.

Since many of the mental and allied problems including neuroses arise as a result of haphazard or confused thinking or thinking in a wrong direction, these can be prevented or controlled or even cured as a result of practice of Yoga or meditation in a regular and methodical manner.

When a person is mentally quiet and relaxed with eyes closed, alpha waves start appearing which becomes strong and more prominent when all thought processes are excluded and mind becomes a blank. At this stage of meditation, the person enjoys internal peace and worries disappear and the mind becomes quiet but alert; and later when one practises it regularly, interesting new states of consciousness such as a feeling of floating above your body in dream-like state may occur. One discharges one's daily work with more enthusiasm and its quality also improves. With this renewed mental energy one becomes alert and active throughout the day and minor mental ailments and problems disappear or are kept under check.

In the next stage of meditation which is the theta state, one reaches at the creative

Brain Wave Frequency Bands of Electro-Encephalographic Record

Waking State	Sleeping State	Tranquility State	Creative Level State
Beta 13 to 26 (Hertz)	Delta 0 to 4 (Hertz)	Alpha 8 to 13 (Hertz)	Theta 4 to 8 (Hertz)

(Cycles per second in Hertz)

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level and mind becomes unburdened of the past and will be receptive to totally new, original and creative ideas and one may make even unusual discoveries as has been the experience of geniuses throughout the ages. These states of mind help the meditator not only to overcome his past mental problems but improves his health in general and even prolongs life. In this Alpha–Theta state, one can program one's mind for important character changes; may be for material success or even spiritual attainments depending on what one may wish. This altered state of consciousness helps a person to give up drugs which he may be taking to get a kick and avoid drudgery of daily life.

This Alpha-Theta state takes one to a new life, to a new creative level, a new self-healing capacity in some cases. In other words, this helps to resolve deep-rooted stress and strain in the nervous system, thus harmonising and refining the functioning of the body and mind and releasing great energy for effective action. In daily life it would mean that one is capable of doing more with less effort without getting tired or anxious and one may feel happier and more at ease in all circumstances.

In short, this Alpha–Theta state when practised regularly by meditation, not only improves the quality of life of the individual but by virtue of his improved helpful and generous outlook it may even make an impact on society in which he lives, thus benefitting it. The question now arises as to how this meditation be done.

There are, of course, various techniques and schools but one has to choose a practical one of least dogma with maximum benefit preferably under the guidance of a trained *Guru*. Of course, in everyday life for general public as a whole, it is not necessary to aspire for the ultimate goal of self-realisation or enlightenment but regular meditative practices preferably twice a day reaching the Alpha state may be good enough to overcome most of the mental problems and giving extra mental energy for the day's work. In other words, it helps to charge the battery for the day's work–(as I generally speak about it).

I understand that in some places in America, specially Menninger Foundation, they are now using Alpha–Theta monitor to shorten the time to require to reach Alpha-Theta states. This is a Biofeed Back instrument which gives confidence to the beginner as he enters the Alpha state and later the Theta state by a Bip Bip sound and even *Swami Ram* who had previously worked at Menninger Foundation found these Biofeed Back instruments useful.

It is thus clear that Yoga has a definite place in combating many mental and allied ailments and problems and if practised regularly it helps to produce a sound mental health.

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YOGA THERAPY IN PSYCHOSOMATIC DISORDERS

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Various Yoga techniques could be employed with advantage in the management of psycho-somatic disorders along with suitable medicines. Through *asanas* like *Shavasana* and *Makarasana*, patients can be helped to relax physically and they can be taught to feel and release tensions working at different levels of existence. Postural substrate can be tackled by judicious use of various corrective-cum-cultural *asanas* and through proprioceptive and visceroceptive inputs and awareness visceral functions and emotional behaviour can be imporved. The whole nervous system can be influenced by resorting to suitable breathing in different *asanas* and through developing awareness of correct pattern of breathining in resting condition. Introduction of *pranayama* after correcting the breating pattern shows better effects. Cleansing processes further help to work on the viscero-emotional complex working through the autonomic nervous system. Meditational technique; dietary moderations and reformations and reciting properly selected *mantras* further help in the treatment of psycho-somatic disorders. The therapist should be well versed with the functioning of the body and mind in order to tackle various responses and reactions to Yoga techniques in patients; otherwise it is better to limit the approach to yogic physical culture.

Introduction

Almost all the Yoga techniques have a psychophysical base. Hence they could be utilised in the management of psychosomatic disorders. However, it should be clearly kept in mind that originally the science, art and philosophy of *'Yoga Darshana'* was never developed as a system of therapy as we understand today. Yoga and Ayurveda had developed hand-in-hand for years together and the routine treatment of various diseases was tackled by Ayurveda while Yoga has always stressed for self-realisation. Such an arrangement actually suggests the complementary rather competitive nature of the two systems in vogue in this country and this seems to be the truth. Ayurveda has referred to Yoga techniques for therapy of some psychosomatic disorders and some texts do claim Yoga for removing 'Bhava tapas' i. e. diseases of spiritual nature.

Classification of Diseases for Yoga Therapy

Even though one gets a long list of psychosomatic diseases, following guidelines would prove useful for the purpose of understanding Yoga therapy.

I. Working of the nervous system.
   (a) Hyper functioning.
   (b) Hypo functioning.

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II. Working of the feeling.
   (a) Emotions.
   (b) Intellect.

III. Body posture.
   (a) Flexion attitude.
   (b) Extension attitude.

IV. Various endocrinal and metabolic aspects.

In fact, all these aspects of the individual are interrelated.

If one reviews various presciptions of Yoga therapy, one will be able to find out certain common factors as detailed below. According to individual case, modifications are made in these factors by different therapists and further modifications are made according to the reactions, responses and feelings of the patients themselves.

Guiding Principles of Yoga Therapy

1. Relaxation

Every psychosomatic and functional disorder is the outcome of some stress which results in mental tensions, excessive stimulation or inhibition of the nervous system affecting tone, posture and equilibrium along with disturbances of visceral functions, value system and attitude of the patient.

Therefore training in physical and mental relaxation is a must for all types of psychosomatic disorders amenable to Yoga therapy. *Shavasana* and *Makarasan* are the two important relaxation *asanas*.

The important steps to follow and observe are summarised below :

(i) Most comfortable and suitable position of the body where gravitational influences would be minimum and which will be most conducive to relaxation.

(ii) To develop an ability to feel tensions operating in different parts of the body and to release them by suitable adjustments at gross or subtle level.

(iii) (a) To become aware of one's own breathing in the region of the umbilicus and gradually allow the breathing experience-cum-awareness to spread to thorax.

(b) To feel breathing activity in the region of the back which is possible as muscles of the vertebral column relax. In due course of time one can experience an expansion of abdomen and thorax in all dimensions during inspiration and reduction in the size of these cavities from all directions during expiration.

(c) With some practice one can feel inflation and deflation all over the body which is synchronous with breathing.

(iv) To feel the touch of air within the nostrils and to remain aware of the same and even get guided by these sensations within the body. These could be either warmth and cold, touch, pressure, volume changes or flows.

(v) To observe various thought-processes in a passive manner and neither to supress them from coming to one's own mind nor get lost in them.

(vi) To change the awareness from i to v given above in a cyclic way or in a randomised fashion taking care not to fall asleep, but to remain awake; with some practice one will be able to relax in other positions of the body also.

In advanced stages patients could be made to bring back to memory various associations

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related to different parts of the body and to work out the causes for those associations. This should be done cautiously by an experienced therapist knowing the repurcussions of activating associated memories and thoughts.

2. Asanas for tackling and correcting Postural Substrate

Most of the cultural *asanas* described in different books could be used to tackle and correct the postural substrate of the individual and thus bring about a change at the psychological level through proprioceptive feedback. The theme has been presented in figure 1.

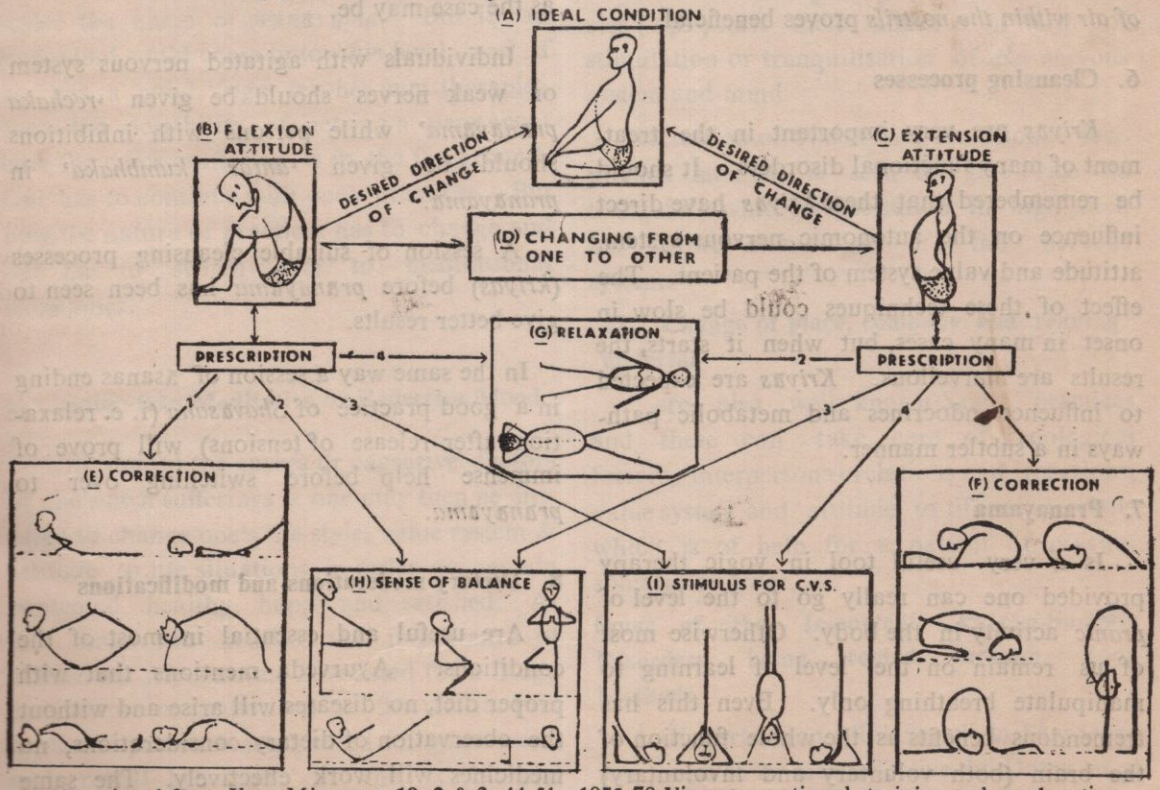
3. Breathing in asanas to tackle Muscle Tone and Functioning of the Nervous System

If the muscles of the body are hypotonic, then it is better to ask the patient to practise *asanas* after deep inhalation and holding the breath during the maintenance of *asana*.

On the other hand, if the muscles are hypertonic, then it is advantageous to exhale and hold the breath out during the practice of *asanas*. As one can not hold the breath for a long time, one could have a number of breaths with breath-holding, either after inspiration or expiration, as the case may be.

In normal conditions one could continue with natural breathing in every *asana*.

Figure—1. Schematic presentation of the possible application of different yogāsanas for tackling postural substrate



(Reprinted from *Yoga Mimamsa*, 19, 2 & 3, 44-51, 1977-78 Viscero-emotional training and re-education through yogāsanas)

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4. Sequential practices

Like *Sūrya-namaskāras* have been found to be useful for those patients who have obsessions and fixations. Changing *āsanas* one after the other will help to break the tendency of the mind to remain fixed to one thing. This will work if the individual could remain aware of what one is doing and what is happening during any sequential technique.

5. Condition of the eyes

If the patient shows tendency to go within; then *keeping the eyes open* during the whole session of Yoga practices proves useful. On the other hand, if one feels that the mind of the patient wanders outside the body, then keeping the eyes closed and *feeling the touch of air within the nostrils* proves beneficial.

6. Cleansing processes

Kriyas are very important in the treatment of many functional disorders. It should be remembered that these *kriyas* have direct influence on the autonomic nervous system, attitude and value system of the patient. The effect of these techniques could be slow in onset in many cases, but when it starts, the results are marvellous. *Kriyas* are expected to influence endocrines and metabolic pathways in a subtler manner.

7. Pranayama

Is a very useful tool in yogic therapy provided one can really go to the level of *pranic* activity in the body. Otherwise most of us remain on the level of learning to manipulate breathing only. Even this has tremendous benefits as the whole function of the brain (both voluntary and involuntary) gets modified. Regularised systematic breathing helps one to regularise various physiological and psychological functions in due course of time.

As referred above, individual considerations become important even though one can easily start with *Anuloma-Viloma* and *Ujjayi Pranayama* with advantage and without the fear of any unwanted side reactions. Other types of *prāṇāyāmas* can also be learned and utilised according to individual reactions, responses and feelings.

It is advisable and rewarding to refrain from breath-holding (technically called *Kumbhaka*) in the initial period. In the light of inner feelings, one can gradually progress with *Antar-Kumbhaka* or *Bahya-Kumbhaka* as the case may be.

Individuals with agitated nervous system or weak nerves should be given *'rechaka prānāyāma'* while persons with inhibitions should be given *'antar kumbhaka'* in *prānāyama*.

A session of suitable cleansing processes (*kriyas*) before *prānāyāma* has been seen to give better results.

In the same way a session of āsanas ending in a good practice of *Shavāsana* (i. e. relaxation after release of tensions) will prove of immense help before switching over to *prānāyāma*.

8. Dietary moderations and modifications

Are useful and essential in most of the conditions. Ayurveda mentions that with proper diet, no diseases will arise and without the observation of dietary considerations, no medicines will work effectively. The same holds good for Yoga techniques too.

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9. Mental Tensions and Meditation

Through *prāṇāyāmas* and *āsanas* one is expected to develop some inner experiences while the tensions at the gross level are being tackled and released. At this stage one can become aware of the mental tensions and conflicts etc. if the individual gets proper guidance. This can create a turbulence in the individual because there is something like confrontation taking place within & the individual could become more sensitive for some period. We could call this as the most critical phase or period in yogic therapy of psychosomatic disorders. Very often people do not reach this stage as they keep on the physical aspects of āsanas and some breathing manipulations under the name of *prāṇāyāma*. But if an individual could come upto this level, and if one has a good Yoga teacher-cum-therapist, then the possibility of getting a permanent cure for one's suffering is in the foreground. One has to continue with one's practices. But now the nature of practices has to change and one has to switch over to meditational techniques.

10. Going into Meditative or Reflective Mood

will unfold the causes or causative factors of one's own sufferings & one may then be inspired to change one's life style, value system & attitude to life situations in order to remain contented, healthy, happy and satisfied. At this stage one realises the importance of *Yamas* and *Niyamas* as advocated for a Yoga practicant in comparison to the similar precepts and practices emphasised for good social and moral behaviour in the educational system. The former is developed from within while the latter is imposed from outside.

11. Recitation of Mantras

is a special subject in itself. According to the accepted norms, one has to learn the correct pronounciation of the *mantra* by reciting it loudly and getting a feedback through ears by way of hearing and listening. Then one has to switch over to movements involved in the recitation of *mantra* without producing audible sound and feel this activity through feedback. Ultimately one has to carry this process at the level of the mind only (brain). This helps to form a smaller and closed loop of motor-sensory activity which goes on working and shaping the awareness. Short or long *mantras* (according to total number of alphabets in it) gives rise to different frequencies and these frequencies (cps) have their influence in terms of stimulation or tranquilisation of the nervous system and mind.

Recitation of *Omkar* in a traditional low-pitched manner is seen to give rise to tranquility while its recitation in high pitch has shown stimulation of the nervous system.

12. Change of place, company and reading material

are also well known Yoga practices and these can take care of ecological factors, interpersonal relations and reactions, value system and attitude to life as a whole which is of help for a patient of psychosomatic disorder.

Some of the Important Psycho-Somatic Disorders being treated through Yoga Methods

1. Hypertension : Relaxation in *Shavāsana* was found to be most effective by Datey et al (1969), and Patel et. al. (1973). Medical tranquilizers and sedatives generally block

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the manifestations of mental tensions in terms of elevated blood pressure while in Yoga the tensions are released by removing blockages and suppressions.

2. Rehabilitation after heart attack and myocardial infarction :—Relaxation and performiag *asanas* without exertion and simple *pranayamic* breathing without retension of breath were seen to give highly hopeful results by Tulpule (1971, 1980).

3. Bronchial asthma was seen to get tackled by cleansing processes and *prāṇayama* along with suitable diet by Bhole et. al (1977) and Satyananda et. al (1982). Bhole et. al (1982) got encouraging results with A. S. Q, N. S. Q studies and changes in value system in asthma patients with psychological disturbances.

4. Tulpule et. al (1977), Mehmud (1981) and Divekar et. al (1981) have shown favourable results with *asanas*, cleansing processes, *bhastrika prāṇayama* and relaxation in obese diabetic patients and relaxation and *prāṇayama* in lean and thin diabetic patients.

5. Gharote (1977), and Divekar (1981) observed beneficial effects of Yoga exercises in the treatment of obesity.

6. Kuvalayananda (1924-26) explained in details the treatment of constipation by Yoga techniques.

7. Bhole (1970) has given an outline of Yoga therapy for chronic sinusitis, rhinitis and headaches.

8. Vinekar and Wahia have shown relief from hyperacidity in biliousness through their work at K. E. M. Hospital, Bombay (personal communication).

9. Gogate et. al. (1978) have worked on the problems of old age and Yoga and got very encouraging results.

10. Swami Kuvalayananda and Vinekar (1961) attempted to explain the rationale of yogic therapy in modern medical terminology based on philosophical and scientific concepts while in a monograph on 'Yoga and Stress disorders'. Udupa (1978) has explained the channels of action of Yoga techniques based on experimental evidences. Swami Satyananda et.al (1962) have published monographs of yogic treatment of selected diseases along with detailed bibliography.

More work on scientific lines is required to understand various potentialities and limitations of this subject as the claims made by Yoga exponents and scriptures are very high and promising.

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KUNDALINI YOGA—A SCIENTIFIC APPRAISAL

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It can be well conceived that if one regularly practises the technique described in this paper for a prolonged period, he might one day experience the sudden awakening of *Kundalini*, a syndrome so well described by Gopikrishna in several of his treatises. It should be remembered here that even without such awakening, one can derive a maximum benefit from it by a regular practice. He can calm down his emotional disturbances and enhance his intellectual activity through the *Kundalini Yoga*. It seems that our ancient sages had possibly used this technique for their enormous contributions to our philosophy, religion and culture. It is high time that we should revive the use of this and other similar yogic practices for the benefit of man. Thus, *Kundalini Yoga* is a great weapon which can be used and practised by anyone who wants to uplift himself and others to serve the humanity at large.

There are many types of Yogic practices for promotion of good health, physical, mental and spiritual. Amongst them Raja Yoga which mainly consists of practice of yogic postures, breathing exercise, and meditation is the most popular one from a common man's point of view. However, those who want to promote their mental health still further to a higher level, will have to accept yet another important branch of Yoga, namely "*Kundalini Yoga*". It is a part of Tantra Yoga which is being practised by the experts in the field since time immemorial. The main credit for popularising it in recent past goes to two persons, namely to Sir John Woodroff (Arthur Avalon) who wrote his well known book "Serpentine Power" and to Shri Gopikrishna of Srinagar who wrote several books based on his personal experience of awakening *Kundalini*. Since then, several studies have been undertaken to find out scientifically the nature of this latent power and the method of its utilisation for promoting mental health by each individual.

It should be realised here that the practice of yogic postures are mainly directed towards the improvement in the bodily health. However, as a result the function of the psychic power also improves automatically to a considerable extent. On the other hand, the practice of *Kundalini Yoga* is mainly directed towards the improvement in the functioning of nervous system. If people continuously strive hard to improve the functions of the brain, spinal cord and autonomic nervous system,

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it would be a great boon for maintaining good health and also improving the level of their consciousness. According to Shri Gopikrishna it would be one of the ways by which a person can possibly accelerate evolutionary process of future generation. It is perhaps the only way by which evlutionary changes can be introduced for the betterment of humanity as a whole in years to come. Thus he states : "This evolutionary energy is taking man step by step towards higher states of consciousness. In the course of this journey he becomes intellectual, aesthetic, talented, a genius and finally an enlightened man." In view of this great potentiality of improving the intellectual activity, there is an urgent need for conducting scientific research into this branch of Yoga. If the above claim can be proved beyond any doubt, it can be a great weapon for improving the status of mankind as a whole. Therefore let us examine all the available literature on the subject more closely.

Review of Ancient Literature

The knowledge about the presence of latent energy staying together at certain areas of our body was known to our ancients since time immemorial. There is reference in our ancient book "*Veda*" and also in various *Upanisads* which are the fountain-heads of our ancient Indian knowledge. There are even indirect reference to this in the Bible and in the *Sufi* spiritual literature. Thus, suffice it to say here, that the enlightened people all over the world had conceived the presence of such an occult power in mankind. Discussing this subject Pandit Gopikrishna states: "The one chief characteristic that distinguishes the Indian systems, specially the thought and practice of Tantra, is the importance given to consciousness. There are several states of consciousness and it is the purpose of Yoga to uplift and transform the lower states of consciousness into the higher."

In the book "Yoga Vasistha" it is stated that many supernatural powers can be obtained through stimulating the *Kundalini* power dormantly present at *Muladhara Chakra* which is situated (around inferior hypogastric plexus) in the perineum. In order to get higher power, it is necessary to arouse this power and direct it towards the brain. There are a large number of ancient books on Yoga, specially of Tantra Yoga which give a detailed description of the method of arousing *Kundalini* or a coiled-up energy. However, it is always better and safer to practise it after getting initiated by a teacher of repute.

By following any one of the methods, if one can arouse the dormant energy at *Muladhar Chakra* into active one and thereafter consciously make it to travel from below upwards in the spinal cord to the brain, it will lead to much favourable response. Thus Narayananda states. "When by the power of long internal meditation the vast mass of energy stored up travels along the *Sushumna* (spinal cord) and strikes the centres, the reaction is tremendous ... ... It is supersensous preception. And when it reaches the metropolis of all sensations, the brain, the whole brain, as it were, reacts and the result is the full blaze of illumination, the perception of Self.....Thus rousing of the *Kundalini* is the one and the only way to attain divine wisdom, superconscious perception, realisation of spirit." Here we should remember

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that attainment of such a power cannot be measured objectively through the eyes, ears, by any instruments. It can be assessed only through the subjective experience of the performer. However, here is one of the researchable topic which can be investigated fully by using all the modern scientific parameters.

Anatomical Considerations

According to Tantra Yoga, there are six nerve centres (Chakra) distributed in various parts of the body in addition to all the centres in the brain known as "Sahasrara". There are three Nadis known as Ida, Pingala and Sushumna which connect these Chakras to the brain. They can be correlated with the spinal cord (Sushumna) in the centre with two sympathetic chains on either side (Ida-left sympathetic chain, and Pingala-the right sympathetic chain). The six Chakras can be correlated with the six autonomic plexuses of nerves, namely lower hypogastric plexus for Muladhar Chakra, upper hypogastric plexus for Swadhisthan Chakra, coeliac plexus for Manipura Chakra, cardiopulmonary plexus for Anahata Chakra, cervical plexus for Vishuddha Chakra and hypothalamo-hypophysical system for Ajna Chakra. In Modern Anatomy these plexuses are not given that much importance, though from the point of view of the function, the organs and viscera supplied by these nerves play an important role in regulating the activities of the whole body. The cerebral cortex influences the function of these vital organs through the hypothalamus and autonomic nerve connections. Therefore, experts on Tantra Yoga rightly give so much importance to these Chakras.

It is well known that each of these plexuses is fully represented by a sympathetic and parasympathetic component. Further, these plexuses send their nerve connections to various organs which act both as sensory and motor nerves. Through these nerves the functions of the organs and viscera are fully regulated. On the sensory side from the plexuses, the nerves reach the sympathetic ganglia (Ida and Pingala) from where the sensations reach the spinal cord (Sushumna). Hence there occurs a local reflex action and also a central action after the sensory input reaches the brain. The local reflexes are in the rospective areas at spinal cord level, along with the nerve plexuses and the organs concerned can be treated as one Chakra. Thus the Tantra experts have enumerated six Chakras with Sahasrara as the 7th, the centre of headquarter activity.

Muladhara Chakra

Thus the Muladhara Chakra is situated in the perineum with external genitals as the main organs supplied by the nerves from the inferior hypogastric plexus. This is the lowest plexus of the autonomic nervous system with a centre at the spinal cord at the lowest level. Since these external genital organs are richly supplied by both cutaneous (skin) as well as autonomic nerves, they can be activated through voluntary efforts if one can learn the method of doing so. Perhaps no other organ in the body is so richly supplied by both these groups of nerves and hence this most sensitive part of the body specially the genitals have been taken as 6th organ in Tantra Yoga to activate the entire nervous system of the body. Normally all the sense-organs such as eye,ear, nose, tongue and skin carry the knowledge of sensory perception to the respective areas of

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the brain via reticular activating system (RAS) and thalamus nuclii. Such a perception produces a series of changes in various centres of the brain leading to development of adaptation process in the body by producing changes in neurohumoral and endocrine system. But according to the concepts of of Kundalini Yoga, man's brain can also receive the powerful stimuli through the external genitalia, via the spinal cord, R.A.S. and thalamus. Although this sensation can be incorporated as sensation from the skin, it has been given a special significance and therefore it had been given a separate status. Thus, if one can save the sexual energy through the practice of *Brahmachaya* (abstinence from sexual activity), the same can be utilised for the stimulation of various areas of the brain such as psychic centre for obtaining more productive and useful results. In fact, the possibility of voluntary stimulation of Muladhara Chakra, situated in the perineum close to the region of external genital organs leading to voluntary stimulation of certain specific areas of the psychic centre of the brain is one of the most important contribution of *Kundalini Yoga*. It is through this route that the ancient sages obtained remarkable useful results by activating the brain for the betterment of the people in general. However, because of the fact that the matter had been kept relatively secret, the common man could not derive the fullest benefit from it and only a few selected disciples of some renowned sages could make full use of this knowledge.

Now the time has come to study the phenomenon scientifically so that the humanity at large may be in a position to derive maximum benefit from it. That is how Gopikrishna states that the awakening of Kundalini can be a useful evolutionary process to improve the level of consciousness of future generations. Hence the Muladhara Chakra situated in the region of external genital and supplied mainly by inferior hypogastric plexus of nerves play a very vital role in the initiation of sensation which passes through the sympathetic chains to the spinal cord so as to ultimately reach the brain to produce series of changes. Hence Muladhara Chakra has been given a special significance which in turn may also stimulate the remaining 5 Chakras before reaching the Sahasrara Chakra present in the brain. However, all these statements of Tantric Yoga need scientific confirmation.

Swadhisthan Chakra

This Chakra represents upper hypogastric plexus which supplies sympathetic and parasympathetic nerves to the bladder, rectum, prostate, seminal vesicles in males, and bladder, rectum, uterus, vagina in females. The sympathetic nerve connections are from the sympathetic chains which are connected with the spinal cord at the appropriate level. The parasympathetic nerves come from the nerve regions from the spinal cord. This Swadhisthan Chakra consists of the spinal cord at the level stated above, the connecting nerves to the plexus, upper hypogastric plexus itself and the organ supplied by these plexuses of nerves. A clear knowledge of these anatominal connections are essential for a person interested in meditation so that he can concentrate on all these structures while fixing his mind on Swadhisthan Chakra.

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Manipura Chakra

This is one of the important Chakras which has many nerve connections with the visceral organs. It represents "coeliac plexus" of nerves with vagus as parasympathetic nerve component and greater and lesser splanchnic nerve as sympathetic nerve connections. The spinal cord connections would be almost at the same level as that of connections of coeliac ganglion. The organs that are supplied by this ganglion are the whole of the gastrointestinal canal except the lower part of the large bowel, liver, gall bladder, biliary tract, pancreas, spleen, kidney, ureters and suprarenal glands. In view of the fact that this Chakra regulates the function of most of the abdominal viscera engaged in the digestion, absorption, assimilation and excretion. Metabolically it has a very vital role to play. Thus those people, who have some digestive or metabolic disturbances will have to take greater interest in this Chakra to regulate the activities of these organs.

Anahata Chakra

Anahata Chakra is the fourth centre in the body consisting of cardiopulmonary plexus present in the chest cavity. It is also supplied by vagus nerve from the parasympathetic side and cardiac and pulmonary branches of nerves from the sympathetic chain. These plexuses of nerves not only supply the heart, lung and trachobronchial tree, but also the oesophagus, aorta and other structures of the chest cavity.

Vishuddha Chakra

The Vishuddha Chakra is situated in the region of the throat consisting of oropharynx and larynx. The parasympathetic nerve connections come from the respective cranial nerves (3, 7, 9 10th nerves) and the sympathetic nerve connections come from the cervical sympathetic nerves not only to the eyes, ears, nose, pharynx, larynx, and trachea, but also to mouth, all the salivary glands, thyroid and parathyroid glands.

Ajna Chakra

The sixth centre is the Ajna Chakra. It is located in the hypothalamus, lumbic system and the neighbouring region with connections of pituitary gland on the lower and front side and pineal gland on the upper and back side. It is known that this is the main area where there are centres for regulating the function of entire autonomic nervous system consisting of both sympathetic and parasympathetic nervous system and also the centres of hunger, thirst, sex, emotions, etc. Therefore, Ajna Chakra is considered as an important one for regulating all the functions of the above stated five Chakras. Traditional Tantriks state that this is the main seat of mind and it is from here that a person regulates the basic needs of his body.

Sahasrara Chakra

This Chakra is situated in the whole of the cerebral cortex. This is the main area where a person develops the various levels of consciousness, such as conscious, subconscious and superconscious states. Here the entire Kundalini energy starting from Muladhar Chakra upto the Ajna Chakra merges at the Sahasrara level (psychic centre of cerebral cortex) to produce its desired results in an awakened state. Thus the mind, intellect and all the levels of consciousness merge together

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to make him an enlightened person. Therefore this is the most important centre where the Kundalini Shakti culminates from below upwards and produces its desired results all over the body from above downwards. That is why, while practising Kundalini Yoga one concentrates on these Chakras from below upwards at first and then from above downwards. The result is that there is a free communication between all the seven Chakras and also with the various organs and regions supplied by these Chakras. Thus the level of consciousness remains very high not only with regard to the perception of the external world but also with regard to the perceptions of all the internal organs and tissues. This is perhaps the most important, yet most unexpensive techniques by which one can dive deep into one's own level of consciousness and thereby into the various internal organs and tissues. Hence one should know the full technique of practice of Kundalini Yoga as described by the ancient people.

Practice of Kundalini Yoga

Here one should remember that if one wants to become successful in his practice of Kundalini Yoga, he must regularly do the Hatha Yoga practices also. He should be specially conversant with the Yama, Niyama, Asana and Pranayama, so that he can prepare his body and mind well for the practice of Kundalini Yoga. The practices of Yama (good social interactions) and Niyama (good personal behaviour) are some of the aspects of life-style to be followed by each and every aspirant. Through these methods, one tries to restrain his sensitive sense-organs and turbulent mind. Normally there is a tendency on the part of mind to externalise its connections through different sense-organs. Our attempt should be to restrain these tendencies and then to internalise them so that we can conserve and utilise all our energies for the better purposes of our life.

Amongst all, the Brahmacharya or continence or celibacy is the most important part of Yama which has to be practised as best as one can possibly achieve, if he wants to awaken the Kundalini Shakti or energy in near future. If one does not regulate his sexual behaviour to its utmost, he will never be able to achieve the goal. By adopting too much of sexual indulgences, one is expected to lose not only bodily energy, but also that of the mind. Discussing the problem, Swami Narayananda states, "Not only the sex-organ is to be controlled, but also all the other senses. One constantly loses so much of energy and vitality by the unnecessary activities of various senses. Austerity teaches one to control and conserve this great wastage of energy through the various sense organs and mind— —. He who cherishes desires, he who hankers after sense-objects is always restless and miserable. A man of craving will have no peace of mind. A restless man is always weak. And he who is indifferent to the cravings of the senses, and he who keeps the mind and senses under restraint, lives in great peace and power. This great internal strength, the gigantic will power that by the one-pointedness of the mind one can have by intense *Tapasya*— —. By intense Tapasya one gains not only the purity of Mind, Nadis and the Body, but also gains strength through which one can easily take Kundalini Shakti to higher planes." From this, one can easily understand how important it is to conserve sexual energy as best as he can if he wants to awaken Kundalini Shakti. It does not mean that there should be total

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abstinence from the sexual act by a young man. It only means that a strictly regulated sexual act will greatly help one to awaken the Kundalini at a faster rate than one who indiscriminately misuses this energy for his bodily enjoyment.

In the Asanas one has to do the minimum of eight to ten Asanas everyday in order to get his physical body fully prepared for the awakening. The choices of these Asanas can be variable depending upon the age and sex of individual. Young persons should do a more strenuous type of Asanas whereas older people should resort to more relaxing type of Asanas. However, the total time taken for this purpose should not be more than 15 minutes. Otherwise it will become too much of disproportion between the time taken for physical postures and the other integrated yogic activities.

Pranayama

Literally Pranayama means controlled intake and output of air through regulated breathing. But in actual practice it has a deeper meaning. It actually means the control of the cellular metabolism of the entire body as a result of regulated supply of oxygenated blood to various organs and tissues leading to the optimum release of energy for doing various bodily and mental functions. Here "Prana" can be equated with breath if we take an external meaning while internally it can also he interpreted as energy liberated in the body at the level of each cell. Hence breathing in and out is the visible gross meaning of the Pranayama. Whereas cellular respiration leading to liberation and utilisation of energy in the organ is the real meaning of Pranayama. However, both are but intimately related, because if the visible breathing stops for more than 5 minutes, there are irreversible changes in the brain leading to death of a person. Similarly if the breathing is there but the cells of various organs do not get the oxygenated blood, due to failure of the heart then also the person dies, due to lack of oxygen. Therefore, Pranayama is the most important exercise which has a far-reaching effect on the liberation and utilisation of vital energy throughout the body. The whole nervous system, specially the brain is the most sensitive organ for an increase or decrease in the oxygen supply. However, if a good Pranayama exrcise is carried out as per the standard traditional technique, it will activate the entire brain, spinal cord and the entire autonomic nervous system in such a way that they become fully prepared to participate actively in the further developments of Kundalini Yoga.

The actual techniques of performing Pranayama have already been discussed elsewhere. In this, one will have to sit comfortably in the floor or on a hard wooden cot with some comfortable seat. The environment should be good, peaceful and without much distraction. It should always be done in empty stomach, atleast three hours after taking food or drink. Pranayama should not be done when a person is tired or is agitated. It should be practised as far as possible in a fixed place with a pleasant, clean environment. At first, after taking a deep expiration, one closes one's nostril with middle finger, one takes a deep inspiration for 4 seconds, holds it for 16 seconds and expires the air in 8 seconds. At this ratio, he repeats the performance through the other nostril, by closing the first one by the thumb. Like this, one carries on breath-

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ing exercises, 20 times, slowly and steadily. This gives him instanly a lighter feeling of the whole body and also a feeling of warmth in the surface of skin indicating an improved circulation with fully oxygenated blood throughout the body. Later on, as one becomes more and more experienced, he can increase the ratio from 4 seconds to 8 seconds for inspiration and double the duration of holding and expiration in the same ratio. However, such a change should be done very carefully and gradually. Otherwise it may put a severe stress on the heart and lungs of the individual leading to some harmful effects. Therefore, one should undertake such a change only when his health permits him to do so without the slightest evidence of any discomfort. By this process, one can always see that the nervous system which is highly sensitive to the oxygen intake becomes always alert and therefore it becomes easier for the practitioners of Kundalini Yoga to achieve the goal of its awakening at a much faster rate than otherwise. However, regular practice of Pranayama is the integral part of Kundalini Yoga and therefore it should be treated as the part and parcel of the same procedure.

Practice of Kundalini awakening

There are many methods of this practice and comparatively much less has been written about the actual practice of awakening of the Kundalini. This is perhaps due to the fact that it is dangerous to start the practice of Kundalini awakening without the proper instructions from a Guru or teacher. However, it is surprising that so much has been written about the effect of Kundalini and yet so little has been mentioned about the actual technique. We have been able to get the method from quite a few sources with some effort since unfortunately it is kept as a secret art by many of the Tantrik experts.

The technique of Kundalini Yoga which can be practised by every common man without much difficulty is the one we are going to give you below. There can be many variations and we would like to give you one of the variants in some detail. Whatever may be the technique one adopts, he should stick to it throughout till he achieves his goal of of its awakening.

Technique

In this, one sits in a comfortable posture (Sukhasan) or lotus posture (Padmasan) on a seat of folded blanket or cushion. At first he performs the Pranayama 20 times as per method already discussed. Thereafter he closes his eyes and fixes his mind internally in different Chakras one by one from below upwards for two minutes. At first, he takes his mind and fixes it at the Muladhar Chakra for two minutes from the lowermost part of the spine to the genitals. In each Chakra, one creates vibrations by contracting the underlying muscles. These vibrations are produced not only in the area of the skin but also in all the organs supplied by the respective plexuses of nerves. Therefore, the anatomical knowledge of these plexuses of nerves and the organs supplied by them is essential for proper understanding. Thus in each Chakra one fixes and concentrates his mind consciously and produces five vibrations circularly in the region including the organs supplied by the Chakra (plexuses). This naturally leads to better blood supply, more utilisation of oxygen and more liberation of energy for better functioning of the organs and tissues of the region. After Muladhara

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Chakra he takes up his mind in the same way to circle around and inside the Swadhisthan Chakra in the lowermost part of the abdomen for another 2 minutes. Then he takes his mind and allow it to concentrate at the upper part of the abdomen above the umbilicus (Manipura Chakra) where most of the abdominal viscera are situated. Then one takes the mind further up in the chest for concentrating on the heart and lungs for the next 2 minutes (Anahata Chakra). Then one takes the mind upwards and fixes it for 2 minutes at the Vishuddha Chakra in the throat including larynx and trachea. This should be followed by fixing up our attention in the lower part of the brain (Ajna Chakra) for two minutes. Ultimately one takes up one's attention to the cerebral cortex for two minutes for concentration. This should be immediately followed by Pranayama (10 times) followed by concentration on various Chakras for a similar period on a reverse order from above downwards followed by a Pranayama again 10 times. In all thus, it takes 30 minutes to complete the whole practices. However, we feel these timings can be adjusted as per convenience of each person. Slowly as one practises concentration of mind on these Chakras, he gets an increased feeling of well-being everyday and ultimately becomes a person of greater enlightenment than others. He feels happy and maintains a perfect physical and mental health. He becomes more sober and calm and becomes less irritated when he faces any stressful situation. These are some of the methods and results of achieving Kundalini awakening, which normally takes many years of practice to master them.

Results & Discussion

Physiologically speaking, it looks that the main aim of practice of Kundalini Yoga is to attain, at first, a voluntary control over the autonomic nervous system. This is usually followed by activation of different centres of brain by transmitting certain specific neurohumors to these areas. In order to achieve this, steps are taken in stages. The main principle of practices of Kundalini Yoga is to arrange maximum supply of oxygen to each Chakra and other centres so that they become awakened and active. In view of this, Pranayama becomes the essential part of the practice of Kundalini Yoga. The most simple procedure is to concentrate on these Chakras coupled with Pranayama for a period of two minutes, one goes upwards from Muladhar to Sahasrara one by one from the front part of the body and comes down step by step from backside. This roughly takes about half an hour. This can be preceded by yogic asanas and followed by meditations for a short period which may take another 15 minutes.

We started this study recently and our observations are, therefore, preliminary. Before we started this study, we consulted several people including a Yogi who wanted to remain anonymous. We are using these techniques on healthy persons and also on patients with anxiety neurosis. Our preliminary observations on healthy persons indicate that it produces a great restraint on the emotional and other psychological disturbances. For patients with anxiety neurosis, in whom there were manifestations of psychological disturbances, it greatly helps in calming down their entire psychosomatic apparatus. Our first patient who had sudden severe nervous breakdown leading to psychosis could be brought back to complete normalcy by a regular practice of Kundalini

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Yoga for two months. This person is well and doing his normal activity for more than two years. He still continues to practise this yoga. Similarly, there are 24 other patients of anxiety neurosis who are practising it for a shorter period. Since these preliminary observations have yielded some positive results, we have started a detailed scientific study both on healthy persons and also on patients with various psychosomatic disturbances. Suffice it to say here, that the regular practice of Kundalini Yoga can produce enormous good to every person especially in regulating the functions of the nervous system.

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ELEMENTS OF YOGA IN AYURVEDA

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Yoga and Ayurveda are allied disciplines. The critical study of the Ayurvedic classics indicates that most of the basic concepts of Yoga are already described in Ayurvedic texts. The descriptions of ethical principles like *Maitri, Karuna, Mudita, Upeksha*, the *Yamas* and *Niyamas, Asana, Pranayama, Pratyahara* and advanced mental processes are found both in Yoga and Ayurveda with similar emphasis. The *Siddhis* attainable through Yoga are also described by *Charaka* in full details. The significant description of three *Upastambhas* viz *Ahara, Nidra* and *Brahmacharya* and the emphasis on purificatory procedures in the two systems are also equally emphasised.

Ayurveda aims at keeping a person in full health and relieving his body and mind from sufferings of all kinds. Not only health and happiness in all aspects is to be achieved but such life should be longer enough so that one can attain the higher ideals in this very life. Ayurved is "*Ashtanga*" i. e. it is divided into eight branches. Yoga is also aiming to relieve a person from "*Kleshas*" i. e. harmful and unwholesome states of body and mind and shows the path of attaining union with universal consciousness and full peace. Yoga too is "*Ashtanga*" i. e. divided in eight branches. This shows that structures of science of Ayurveda and Yoga have significant resemblance and that their aims are also identical.

It is also traditionally claimed that the authors of three treatises–"*Patanjal Yoga Sutra*", "*Vyakarana Mahahhashya*" and "*Charaka Samhita*" were the incarnations of one and the same person i.e. *Shesha Naga* and they fulfilled their mission of removing the tarnish of mind, impurity of speech and vitiation of body by producing their treatises.

As authors had different objectives their emphasis naturally was on the main subject. Thus Yoga deals mainly with processes of regulation of mind while Ayurveda particularly *Charaka Samhita* and other available *Samhitas* deal mainly with diseases related chiefly to the body e.g. *Charaka Samhita-Kayachikitsa, Sushrut Samhita-Shalya Shalakya, Kashyap Samhita – Kaumarbhritya*—diseases of women and children. We do not find at present any *Samhita* which deals particularly with mind, its functions and diseases. Whatever we know about mind and its functions in health and disease is based mainly on *Charaka Samhita*. *Charaka Samhita* is

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also a valuable source for philosophical concepts and practices which have much resemblance to *Shatpath Brahman, Upanishadas* and *Mahabharata* than to other *Darshans* of later origin.

Charaka Samhita moreover excels in following points which are wanting in *yoga sutra*—Exact definition and synonyms, qualities and functions and site of mind and peculiar innate tendencies and provocative forces which upset it, specific signs and symptoms of deranged mind and appropriate therapeutic measures.

Yoga of *yoga sutras*, on the other hand, is not meant for psychotics and other deranged conditions of mind but it is a discipline for those who can themselves, with conscious and persistent efforts, strive to get rid of natural fickleness of mind and want to raise it to higher domains of consciousness.

Ayurveda and Yoga differ not only in their emphasis on the description of their respective subjects of body and mind but they also differ in their *Amnaya* or *Guruparampara* or lineage of transmission of knowledge. *Ayurveda* just like other *Vedas* traces its origin from *Brahma* and thence transmitted successively to *Daksha–Prajapati, Ashwinikumar, Indra* and thence to first human disciples who were *Rishis–Bharadwaja, Vashishta, Maricha, Kashyapa*, or *Dhanvantari* for different branches—*Kayachikitsa, Rasayana, Kaumarbhritya, Shalya Shastra* etc. These in their turn propagated the science through their respective lines of disciples. However, it is clear from *Charaka Samhita* that *Acharyas* of *Ayurveda* were also *Acharyas* of *Yoga* and *Samkhya*.

Yoga, according to *Geeta*, has origin from *Narayana* (*Vishnu*), thence successively transmitted onwards to *Vaivaswah, Manu, Ikshwaku* and thence other *Rajarshies*; and then again from *Krishna* to *Arjun* or according to *Tantra Shastra* from *Shiva* to *Parvati* and *Nandi* and thence onward to other human disciples.

Yoga described in Ayurved—*Charaka Samhita* much resembles that described in *Geeta* than other schools. However, an attempt is made hereunder to show how Yogic subjects as depicted in *Patanjal Yoga Sutra* compare with Ayurvedic descriptions.

Maitri, Karuna, Mudita and *Upeksha* are also described in Ayurveda with particular reference to *Sadvritta*—good conduct of a person and particularly with *Vaidya's* duty towards his patients and modification of his attitude in dealing with different conditions of the patients and their diseases.

1. Maitri (Friendliness) is defined as a quality of human being who feels kinship with all creatures. It is referred as an attribute to be developed in common man for good conduct and amiable relations in society and particularly in a *Vaidya* who proposes to serve ailing humanity of all classes and creeds. This was the dominant trait of the *Rishies* who assembled in *Himalaya* for the first time to find out the solution for eradication of diseases.

2. Karuna (Compassion) is pity. To feel pain in other people's sufferings and difficulty of the needy. It should also reach the sufferings of other creatures and an urge to be helpful to relieve that suffering.

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This was also an attribute of the *Rishies* which compelled them to meet, contemplate and meditate to find out solution for relief of sufferings. This is also one of the admirable attributes of a *Vaidya*. He should have sympathy towards the patients who are suffering from a variety of painful conditions.

3. Mudita or Preeti-Harsha (Gay/Jovial mood)—A citizen should be happy in rejoicings and gay behaviour of others. A *Vaidya* should give preferential treatment where prospects of good results are more. Whatever work is within one's competence, he should do to his utmost and pay full attention with zeal and special attachment to it, till it comes to desired conclusion. In this connection those patients who can afford and have means to procure all prerequisites, they are given preference –(राजानं राजमात्रं वा प्राप्य सम्भारा उपकल्पनीया:; यसुमतां परिच्छदवतां कुटीप्रावेशिक:). Their means and resources should be exploited for greater good and better service and prompt relief of the needy, low income groups—न च रोगा न बाधन्ते दरिद्रानपि दारुणा: । यद्यच्छक्यंप्रयत्नेन कर्तुं मौषधमापदि । तत्तत्सेव्यं प्रयत्नेन वसनान्यशनान्यपि ॥ (च.)

4. Upeksha or Indifference—A citizen should not mind malice of others and keep himself aloof nor involve in vicious dealings of wicked persons. A *Vaidya* should remain unperturbed, detached or neutral. Attitude of aloofness—"उपेक्षणं प्रकृतिस्थेषु भूतेषु" is the only course when all our efforts fail. When natural forces are so dominant to overpower the human efforts for cure, one should take detached attitude and not worry about gloomy prospects. Poor people also should be advised to obtain whatever means and materials, medicines, clothes, foods and household they can afford to fight against serious diseases, but should not worry about their lot. यत्तु रोगसमुत्थानमशक्यमिह केनचित् । परिहर्तुं, न तत्प्राप्य शोचितव्यं मनीषिणा ॥ (च.)

5. Yama—With its five divisions viz. *Ahimsa, Brahmacharya, Satya, Asteya* and *Aparigraha* is described in Ayurveda in different contexts.

(*i*) *Ahimsa—Himsa* is 'inflicting injury or violence on others' and *Ahimsa* is unhurtfulness or non-violence. It is described in *Sadvritta* as one of the universally admirable qualities to be developed in a good citizen. For those who want to derive benefit from *Rasayana* treatment it is obligatory that they should first be clean in their mind and body. Their behaviour should be virtuous and *Ahimsa* is one of the virtues in *Achar Rasayana* (अहिंसकम्, आनृशंस्यपरम्, अक्रोधम्). *Ahimsa* is a virtue which ensures longer life to living organisms. (अहिंसा प्राणिनां प्राणवर्धनानाम्). Vaidya is friendly to all and foe to none (सर्वप्राणिनां बन्धुभूतस्य हितमायु:).

(*ii*) *Brahmacharya* — Strict observance of celibacy is another virtue; sex urge is natural but its judicious suppression, restraint and sublimation are advocated as the best course which prolongs life. (ब्रह्मचर्यमायुष्याणाम्). It is described as one of the pillars (उपस्तम्भ) on which life stands and particularly to be observed by one who wants to pursue *Rasayana* treatment. It is also advocated to be observed

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as an adjunct to get rid of fever which is not amenable to other treatments. (ब्रह्मचर्येण ज्वरात्प्रमुच्यते).

(*iii*) *Satya*—Truthfulness is another virtue to be cultivated. For a good citizen, lying is forbidden (नानृतं ब्रूयात्) and for a patient in general and particularly for a person pursuing the course of *Rasayana*, he should observe truthfulness in his talk and dealings, then only he is fit for *Rasayana* course and can derive benefit from it (सत्यवादिनम्). Even fever is said to be removed by observing Satya (सत्येन ज्वरात् प्रमुच्यते) as it is considered as a type of *Tapas* observed through tongue (वाङ्मयं तपः).

(*iv*) *Asteya*–Theft or stealthiness is a vice while to refrain from that temptation is a virtue. Ayurveda,in *Sadvritta*, advocates to resist the temptation of putting hands on things belonging to others (नान्य स्वमाददीत) (परस्वादुपरतस्य हितमायुः) and even forbids to think of aquiring other people's wealth (नान्यश्रियमभिलषेत्).

(*v*) *Aparigraha* - Parigraha is avarice, collection and heaping up of wealth. Instinct of aquisition is natural but it should be restrained and properly channellised otherwise it may develop into greed and other vices are sure to follow. Therefore, charity (दान), the opposite of greed (लोभ) is to be cultivated and promoted (सततं विविधप्रदानपरस्य हितमायुः).

6. Niyama again as divided in five divisions viz. *Shoucha*, *Santosha*, *Tapas*, *Swadhyaya* and *Eeshwar Pranidhana*–is mentioned in Ayurveda in the course of *Swastha Vritta* and particularly *Sadvritta*, e. g.

(*i*) *Shoucha* (Purity)—means cleanliness of the body and clean habits. It is particularly considered important attribute of a *Vaidya* (physician) and also a *Paricharaka* (attendant nurse). Those who desire benefit from *Rasayana* should also observe this virtue (शौचपरम्). *Shoucha* is again divided as–(a) *Bahya Shoucha* – external cleanliness and (b) *Āntar Shoucha* – internal cleanliness in habits and dealings.

(*a*) *Bahya Shoucha*–comprises of cleanliness particularly of hands and feet and face, generally of body, clothes and tidiness of hair and nails. It also includes cleanliness of excretory organs and daily practice of दन्तधावन, गण्डूष, कवलधारण, अञ्जन, नस्य, धूमपान, कर्णपूरण, शिरोऽभ्यंग, पादाभ्यंग, देहाभ्यंग, स्नान, नख-केश-कर्तन, धौतवस्त्रधारण, प्रसाधन, गन्धमाल्यानुलेपन, पादत्र-छत्र-धारण (च.) etc. and forming regular habits of bowels and micturition, and purification of body at regular intervals by use of *Vaman Virechan* etc.

(*b*) *Ānthar Shoucha* (*Abhyantar Shoucha*)-*Abhyantar Shouch* comprises of rules of social conduct and cultivation of virtues of compassion, composure, endurance, boldness, forgiveness, respect, restraint, etc.

(*ii*) *Contentment* (*Santosha*)-This is opposite to temptation, particularly for aquiring more and more wealth. *Lobha* is avarice and *Loulya* is 'being moved or distracted or agitated by slight provocations and temptations'. For development of contentment, one should resist the instinct of aquisition and pull of Lobha and other worldly provocations and be content with whatever is aquired by lawful means (यानि उपकरणानि सतामविगर्हितानि वृत्ति पुष्टिकराणि स्युः), otherwise he will invite more unrest (लौल्यं क्लेशकराणां श्रेष्ठम्).

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(iii) Austerity (Tapas)–is undergoing hardships and denying comforts voluntarily for definite objectives. Japa is one form of *Tapas* and considered best of all *Tapas*. Daily *Brahma Japa* or chanting of Mantra for all persons and for those who undergo *Rasayana* therapy is obligatory. गायत्रीं त्रिपदां जपेत् (सु.) दिवसे ब्रह्मजपति; सावित्रीं मनसा ध्यायन्) (च.) etc. references support this. अग्निहोत्र, होम, बलि, भैक्ष्यचर्या, त्रिषवण, वनेषु अनिकेत: वास:, व्रतचर्योपवासश्च नियमाश्च पृथग्विधा: etc. are also references for different types of Tapas.

(iv) Study & Revision (Swadhyaya)—Contemplation should also form a part of one's daily life. Without losing time one should repeat and revise his lessons in early morning, in afternoon and at night. He should commit them to memory but also dwell on the meaning and import of the teachings—'धारणं धर्मशास्त्राणां, विज्ञानम्, अर्थतत्व परीक्षणम्'।

(v) Ieswara Pranidhanam (Devotion and Dedication to Lord-Almighty) Worship and Dedication to God according to one's faith or diverting mind and senses towards inner self. This should be a routine practice but especially in conditions of difficulty, despair and helplessness.

विष्णुं सहस्रमूर्धानं चराचरपतिं विभुम् । स्तुवन्नामसहस्रेण ज्वरान्सर्वान्व्यपोहति ॥ सोमं सानुचरं देवं समातृगणमीश्वरम् । पूजयन्प्रयत: सम्यग्मुच्यते विषम ज्वरात् इति ॥ ब्रह्माणमश्विनाविन्द्रं हृतभक्तं हिमालयम् । (च. चि. ३) प्रविश्यात्ममात्मज्ञ: स्वेज्ञाने पर्यवस्थित: । (च शा. ३)

(7) **Asana**–Posture or position of the body in a peculiar style is one division of Yoga. Though we don't find any detailed and pointed discussion regarding Asana in Ayurveda, we find reference of Asana in connection with *Adhyayana Vidhi* in which a student desirous of mastering his subject is advised to sit in an easy posture and in even and clean place. "समेशुचौ देशे सुखोपविष्ट:" The same instructions are found in *Geeta* and *Patanjal Yoga Sutra*. *Rishis* of Ayurveda who assembled in *Himalaya*, also held their deliberations while sitting in comfortable positions in calm and pleasant venue : पार्श्वे हिमवत: शुभे-सुखोपविष्टास्ते तत्र चक्रु: पुण्यां कथामिमाम्. For specific purposes other Asanas are also recommended-as for emesis-वमनशोधन-जानुसमं, असंबाधं, सप्रयुक्तास्तरणोत्तर प्रच्छदोपधानं, सोपाश्रयमासनमुपवेष्टुं प्रयच्छेत् । For a parturient lady-पर्यंक etc.

8. **Pranayama** (Hoding of Breath) :— Exercises of breath-control is also one of the eight divisions of Yoga. *Charaka Samhita* and other *Samhitas* are silent in this respect. They have, however, emphasised importance of air we inhale and exhale in respiration and its importance for maintenance of life and for restoring consciousness (वायु: प्राणसंज्ञाप्रदानाम् वायु: आयु:, वायु: प्राणापानौ प्राणोरुच्यश्चतुभ्योहि, प्राणाञ्जहाति). But *Pranayama* as defined in Yoga is not referred anywhere. However, only at one place, *Vayu* (i. e. Prana) is described as having control over the mind and it regulates or directs the mind (वायु: नियन्ता प्रणेता च मनस:). This particular attribute of *Vayu* points to effects of *Pranayama* as described in text books of Yoga. In later works which deal with *Dhatuvada* for *Loha Siddhi* e. g. रसार्णव and आनन्दकन्द mention Yoga and *Pranayama* as a means of self–realization during this very life (जीवनमुक्ति:)

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(iii) Austerity (Tapas)–is undergoing hardships and denying comforts voluntarily for definite objectives. Japa is one form of *Tapas* and considered best of all *Tapas*. Daily *Brahma Japa* or chanting of Mantra for all persons and for those who undergo *Rasayana* therapy is obligatory. गायत्रीं त्रिपदां जपेत् (सु.) दिवसे ब्रह्मजपति; सावित्रीं मनसा ध्यायन्) (च.) etc. references support this. अग्निहोत्र, होम, बलि, भैक्ष्यचर्या, त्रिषवण, वनेषु अनिकेतः वासः, व्रतचर्योपवासश्च नियमाश्च पृथग्विधाः etc. are also references for different types of Tapas.

(iv) Study & Revision (Swadhyaya)—Contemplation should also form a part of one's daily life. Without losing time one should repeat and revise his lessons in early morning, in afternoon and at night. He should commit them to memory but also dwell on the meaning and import of the teachings—'धारणं धर्मशास्त्राणां, विज्ञानम्, अर्थतत्व परीक्षणम्'।

(v) Ieswara Pranidhanam (Devotion and Dedication to Lord-Almighty) Worship and Dedication to God according to one's faith or diverting mind and senses towards inner self. This should be a routine practice but especially in conditions of difficulty, despair and helplessness.

विष्णुं सहस्रमूर्धानं चराचरपतिं विभुम् । स्तुवन्नामसहस्रेण ज्वरान्सर्वान्व्यपोहति ॥ सोमं सानुचरं देवं समातृगणमीश्वरम् । पूजयन्प्रयतः सम्यग्मुच्यते विषम ज्वरात् इति ॥ ब्रह्माणमश्विनाविन्द्रं हृतभर्तृं हिमालयम् । (च. चि. ३) प्रविश्यात्ममात्मज्ञः स्वेज्ञाने पर्यवस्थितः । (च शा. ३)

(7) **Asana**–Posture or position of the body in a peculiar style is one division of Yoga. Though we don't find any detailed and pointed discussion regarding Asana in Ayurveda, we find reference of Asana in connection with *Adhyayana Vidhi* in which a student desirous of mastering his subject is advised to sit in an easy posture and in even and clean place. "समेशुचौ देशे सुखोपविष्टः" The same instructions are found in *Geeta* and *Patanjal Yoga Sutra*. *Rishis* of Ayurveda who assembled in *Himalaya*, also held their deliberations while sitting in comfortable positions in calm and pleasant venue : पार्श्वे हिमवतः शुभे-सुखोपविष्टास्ते तत्र चक्रुः पुण्यां कथामिमाम्. For specific purposes other Asanas are also recommended-as for emesis-वमनशोधन-जानुसमं, असंबाधं, सप्रयुक्तास्तरणोत्तर प्रच्छदोपधानं, सोपाश्रयमासनमुपवेष्टुं प्रयच्छेत् । For a parturient lady-पर्यंक; etc.

8. **Pranayama** (Hoding of Breath) :— Exercises of breath-control is also one of the eight divisions of Yoga. *Charaka Samhita* and other *Samhitas* are silent in this respect. They have, however, emphasised importance of air we inhale and exhale in respiration and its importance for maintenance of life and for restoring consciousness (वायुः प्राणसंज्ञाप्रदानाम् वायुः आयुः, वायुः प्राणापानौ प्राणोरुच्यश्चतुर्भ्योहि, प्राणाञ्जहाति). But *Pranayama* as defined in Yoga is not referred anywhere. However, only at one place, *Vayu* (i. e. Prana) is described as having control over the mind and it regulates or directs the mind (वायुः नियन्ता प्रणेता च मनसः). This particular attribute of *Vayu* points to effects of *Pranayama* as described in text books of Yoga. In later works which deal with *Dhatuvada* for *Loha Siddhi* e. g. रसार्णव and आनन्दकन्द mention Yoga and *Pranayama* as a means of self–realization during this very life (जीवनमुक्तिः)

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and Yoga can be practised only if the body is strong and compact and such stable body may be achieved by use of *Rasayana*. To convert *Parada* in stable form is one form of *Rasayana* and practice of *Pranayama* is another method of *Rasayana*. "पारदः पवनश्चैव येनोभौ स्ववशीकृतौ" ।– – – "प्राणायाम रसायनम्" ।

9. Pratyahara : It is described as a practice of controlling the senses from having habitual temptation and attachment for outward objects. Ayurveda has described this contact without word-sense-objects as इन्द्रियार्थे संयोगः which may be of two types—(i) *Samayoga* or Sukha yoga–pleasurable contacts (ii) *Vishama yoga* or Dukha yoga–harmful contact, which is also termed as *Asatmyendriyartha Samyog* and has three sub–divisions—*Ayoga*, *Atiyoga* and *Mithya Yoga*. To remain healthy the latter three types of contact with objects should be prevented. But for attainment of *Jnyana* and *Moksha* even inherent inclination for enjoyment of these objects produced by predominant *Rajas* and *Tamas* should also be prevented. This is called *Indriya Nigraha* or *Indriya Vijaya* or *Jitendriyata*. The mind has power of controlling the unwholesome activities of *Indriyas* and even of its own by the inherent Dhriti (धृति) or स्वस्य निग्रहः । This faculty develops when *Satwaguna* is dominating. When thus, the activities of *Indriyas* and *Manas* in wrong direction are prevented, then the person is called *Jitendriya* or *Prayatatma* or *Niyatatma* and he then becomes suitable for *Rasayan Prayoga* and for next stages of Yoga.

10. Dhyana, Dharana and Samadhi. These are the successive processes of concentration of mind on a particular object and meditation and stabilization in a blissful state of communion with universal consciousness or self—realization. When mind is prevented from following Indriyas and visiting external object by controlling *Indriyas* and purged of its impurities of *Rajas* and *Tamas*, and diverted inwards and fixed on *Atma* (self), it becomes clean like a polished lamp which spreads bright light emanating from the flame within or it becomes crystal clear to reflect the exact and real image of *Atma* just like a spotless cleanly polished mirror or light of *Atma* shines out from purified mind as light of the sun shines when cleared from the barriers of shadow of other planets, clouds, dust, smoke or fog. In this condition one does not feel any sensation of pain or pleasure. He is master of himself by *Samadhi*. This is called Yoga. In this state there is ignorance of painful contacts (जीवन्मुक्तिः). He establishes unity with universal self, not slave of senses or mind, and during this very life attains freedom from all *vanishes*, pure knowledge dawns upon him. Correct nature of things is revealed to him. His knowledge is all pervasive. He knows no barriers of time or space. He becomes omniscient like *Rishis* who were first *Acharyas* of Ayurveda, masters of *Divya Darshan*, *Dhyana Yoga* and *Samadhi*.

Achievements of Yoga

When one masters *Samadhi-Yoga*, his mind becomes clear and is dominated by pure *Satwika* quality, then heavenly powers (ऐश्वर्यम् ऐश्वरं बलम्) are generated in him (शुद्ध सत्व समाधानात् तत्सर्वमुपजायते). Extraordinary powers derived from practice of Yoga are called *Siddhi* or *Aishwarya* or *Yoga Bala*. Ayurveda describes eight powers which can be aquired as a result of Yoga. *Yoga Shastra*

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too describes eight types of *Aishwarya* or *Siddhi*. Though number is the same in both, their description differs somewhat.

Charaka mentions them as follows : –

1. *Avesha* i.e. possession of another person's mind or entering in another person's body. 2. चेतसो ज्ञानम् —telepathy–knowing other people's mind, 3. अर्थानां छन्दतः क्रिया—working according to the will or enjoying according to one's choice, 4. दृष्टिः —supersensory vision, clairvoyance, 5. श्रुतिः—supersensory hearing, clairaudience, 6. स्मृतिः—superior memory, 7. कान्तिः—lustre or *aura* around the face or the body, 8. इष्टतश्चाप्यदर्शनम्—being invisible or going out of sight whenever one so desires.

Yoga Shatsra mentions them as *Vibhuti* and presents different list of eight *Siddhies*. They are (1 and 2) अणिमा-महिमा capacity of taking minutest or biggest dimensions, 3. लघिमा - levitation, being lighter in weight, 4. प्राप्तिः— fulfilment, attainment or satisfaction of all desires, 5. प्राकाम्यम्—plentyness or opulence, 6. ईशित्वम्—authority or mastery or domination over others, 7. वशित्वम्— obedience from others, 8. कामानसायित्वम्— total abolishing of all desires, complete eradication of urges.

2. In addition to the foregoing, Ayurveda specifically mentions of suprasensory or extrasensory perception or the power of senses exceeding far beyond their normal limits of space and time (अन्तरेण तपस्तीव्रं, योगं वा विधिपूर्वकम् । इन्द्रियैरधिकं पश्यन्) accruing from practice of *Tapas* and *Yoga*.

3. Deferring death or conquest of death by practice of Japa, Tapa, and Rasayana— रसायन तपो जपतत्परैः तम् (मरणं) निवार्यते । (सु.)

4. Disease fighting or death deferring power of the drugs is potentialised by practice of Japa and Tapa—

गृहित्वा पाणिनातिष्ठेत् जपन्ब्रह्मामृतागमात् ।
तदा ह्यवश्यममृतं वसत्यामलके क्षणम् (च.)

5. Experience of consciousness— Revelation of self (spirit) —

न शक्यश्चक्षुषाद्रष्टुं देहे सूक्ष्मतमो विभुः ।
दृश्यते ज्ञानचक्षुर्भिस्तपश्चक्षुभिरेव च ॥ (सु.)
न हि तस्य दृश्यं दिव्यं विना दर्शनमस्तिरूपम् । (च.)
नाऽत्नासविद्यो न च मांसचक्षुः प्रश्नानिमन्वक्तमुपक्रमेत। (का.)

Obstacles or Interferences in Yoga—
(अन्तरायाः-विघ्नानि)

Ayurveda mentions diseases as the greatest obstacles (महानन्तरायः) in conducting healthy life and in pursuing the path of progress (श्रेयसो जीवितस्य च) and in achieving higher objectives i. e. practice of *Tapas*, *Upavasa*, *Adhyayana*, *Brahmacharya*, *Vrata* and long life. (तपोपवासाध्ययन ब्रह्मचर्यव्रतायुषाम्) *Yoga Sutras* also enumerate various obstacles out of which *Vyadhi* stands foremost.

Diet, Sleep and Enjoyment —
(आहार, निद्रा, ब्रह्मचर्य)

Importance of judicious use of proper, and wholesome food and rest and temperance or moderation in enjoyment are advocated by Ayurveda as also by *Geeta*. Ayurved stresses on moderation and self-control in the matters of food and sleep as both of them are quite necessary for maintenance of good health and

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long life; while used injudiciously they become causes, respectively for obesity and leanness (emaciation). Judicious restriction in sex enjoyment too is equally important for it is attended with some benefits or more serious damage. Ayurved, therefore, considers these three as props or pillars on which life stands त्रयउपस्तम्भा: आहार: स्वप्नो ब्रह्मचर्यमिति । (च.)

Knowledge of Sharir

Sushruta mentions that knowledge of *Sharir* as described in ten chapters of *Sharira Sthan* is equally important for both the physician(भिषग्) and a *Yogi* (योगी). However, the *Sharira* e. g. *Chakras, Granthis* and *Nadies* mentioned in *Yoga Shastra* are not found in Ayurveda. Only mention of ज्योति: स्थानम् at the site of navel (नाभि) may be compared with मणिपुर चक्रम् and हृदयम् as अनाहत चक्रम् ।

Purification Processes

हठयोग and तन्त्रशास्त्र mention six major purificatory processes of the body, while Ayurveda describes five—षट्कर्मणा शोधनं च (हठ) पञ्चकर्म विशुद्धस्य (च.) Furthermore some minor processes are also mentioned viz. स्नेह, स्वेद, नस्य, धूम, गण्डूष, कवल etc. They are described under very same names in both systems and do not differ much. Major purificatory processes have less in common, except *Basti* and *Dhwaja Basti*. Some processes viz.- *Dhauti, Neti, Vata basti, Nauli, Kapala Bhati* of yoga have no parellel in Ayurveda, *Pancha Karma* of Ayurveda are *Vaman* (emetics), *Virechana* (purgatives), *Basti* (enema), *Shiro Virechana* (errhines) and *Sira Moksha* (blood-letting, venesection). These purificatory processes are advocated both for maintenance of sound health and also as therapy for eradication of grossly vitiated *doshas* in diseases. They are performed by use of medicated fluids viz.- decoctions, oils, ghrita, honey and milk. But the result of these *Karmas* advocated by Ayurveda is one and the same i.e. *Shodhana— purification.*

The list of indentical points in Ayurveda and Yoga may be prolonged further but it is sufficient for this paper to prove that major points of *Yoga Shastra* are also dealt in Ayurveda. Though their order and context might be different, their aim is to offer perfect health and to raise man to higher ideals, to elevate the standard of his social life and to lead him on the path of salvation (self-realization).

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PSYCHOPHYSIOLOGICAL CORRELATES OF SOME HATHAYOGIC PRACTICES

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A group of apparently normal young volunteers were instructed to practise certain *Asanas* and *Pranayama* for six months in carefully controlled conditions. Before and after every three months of the course of Yoga practices these volunteers were subjected to a series of psychohysiological investigations to assess the influence of the Yoga practices on mental and physical health of the volunteers. The final assessment revealed a notable correction of body weight, an increase in vital capacity, reduction in the level of blood glucose and serum cholesterol besides certain evidences indicative of endocrine rehabilitation. Thus the regular practice of yoga induced notable beneficial effects on these volunteers in terms of important physiological, endocrine and metabolic functions. Simaltaneously these practitioners when assessed for their mental make-up revealed improvement in their performance Quotient (P. Q.), Memory Quotient (M. Q.), Health Index (H. I.), and Mental Fatigue Rate suggesting a significant improvement in their mental fitness.

Yoga is one of the Indian thoughts which has received maximum attention in recent years and at the same time has been misunderstood to the maximum extent. Therefore, before we come to our own studies, it would not be out of place to devote a few paragraphs to probe into the concepts and traditional aspects of Yoga.

Yoga is the central theme of Indian Philosophy where individual consciousness has been considered as the part and parcel of the cosmic consciousness, the ultimate reality. The very process of realisation of oneness of an individual with the cosmic reality is called yoga. There may be varied means and methods for achieving it but the ultimate goal is the same in all schools of yoga.

The word 'Yoga' is derived from the Samskrit root '*yuj*' meaning 'to unite, to combine or to integrate' and thus may be taken to mean a state of union or integration, that is, the union of the individual consciousness with the cosmic, divine or supreme consciousness meaning thereby a total integration of physical, mental, intellectual and spiritual aspects of human personality. Thus the science of yoga as conceived in classics is the science of man in depth, is the science of conscious evolution or the science of human possibilities. (1) As rightly pointed out by Charles Henry Arnold, Yoga in many ways is the power of thought. Thought power is directed by concentration which refers to the *Patanjali's* concept of "*Citta Vṛtti Nirodha*".

This classical concept of yoga has not materially changed while passing through its far long traditions as reflected in early *Upanisads, Bhagwadgita*, the Yoga Sutras of *Patanjali* followed by the development of specialised yogic schools in *Hinduism, Jainism, Buddhism* and *Sufi* traditions. However, in recent years the thought and the practice of yoga have been greatly brought

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nearer to the needs of the society at large by the teachings and practices of illustrious Indian philosophers like *Swami Vivekananda*, *Shri Aurobindo*, *Mahatma Gandhi*, *Acharya Vinoba Bhave* and *Maharsi Mahesh Yogi*.

The comprehensive philosophical thoughts and yogic path taught by these great yogis of the time, namely, the integral yoga of *Shri Aurobindo*, the *Anasakti yoga* and *Sarvodaya* philosophy of *Mahatma Gandhi* and the Transcendental Meditation innovated by *Shri Mahesh Yogi* have entirely revolutionised the science and philosophy of yoga without deviating from the central theme. Unfortunately most of the scientific investigators have not seriously taken into account these conceptual aspects while planning their studies and while interpreting their findings.

The discipline of yoga is among the oldest and the most important constituents of Indian culture. Its origin seems to go back over 5000 years to the Indus Valley Civilization and even today it is a very live tradition in India. In recent decades the theory and practice of Yoga has attracted considerable attention in the affluent western countries. In more recent years attempts have been made to apply mechanical tools like different kinds of biofeedback techniques to achieve relaxation and to replace yogic discipline. However, the studies reported on such techniques have shown conflicting results and it is possible that after certain years of rigorous investigation we land again on the supremacy of the yogic discipline. Moreover, the use of mechanical tools and the attempts to tackle the conscious element with the help of machines is material and nonyogic approach and its further repercussions are doubtful.

Yoga is not a technique or a tool, it is a discipline and involves a way of life; of course, it includes certain technical aspects too. It not only averts the effects of stress as one achieves by biofeedback techniques but it offers a conscious evolution of the personality as a whole to make it aware and able and competent to face a stressful situation.

Thus the practice of Yoga or as one may like to call it, the discipline of Yoga still stands on unique footings and offers great hopes for the human race today which is subjected to greater stress and strain in this age than ever before.

In view of the above concepts and matching claims by several practising yogis, a need is felt to evaluate the effect of Yoga on human personality and its functions. As mentioned earlier, Yoga as primarily envisaged in the classics, is a discipline or a way of life. Therefore it would be really difficult to evaluate it as a discipline on scientific parameters. Therefore it is advisable to study different aspects of Yoga in parts to collect scientific data which may help us to explain the efficacy of the yogic path as a whole.

In view of this fact, we have selectively studied the effect of certain yogic exercises. Therefore the title of this paper is not a study of yoga but a study of certain yogic practices.

Methods and Materials

For the present studies, 12 apparently healthy normal young educated male volunteers from uniform socio-economic class were selected. The average age of these volunteers was 23 ± 3.36 years, body wt. was 123 ± 12.96

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pounds and standing ht. was 180±6.59 centimetres. These volunteers after initial assessment underwent a 6 months' course of certain *Asanas* and *Pranayama*. These volunteers were trained by our Yoga instructor, *Shri Madham Shettiwar* and they practised these *Asanas* 45 minutes daily for 6 months. They were allowed average household diet and were prohibited from any other kind of exercise during the period of this study.

At the end of every third month of the course, the volunteers were evaluated on following parameters : body wt., abdominal girth, rate of respiration, breath-holding time, vital capacity, pulse rate and blood pressure.

In addition, they were studied for performance quotient by Alexander's Pass Along test and Koh's Block Design test; for memory quotient by Wachsler memory scale; neuroticism index by Mandsley personality inventory; mental fatigue by Joshi's digit cancellation test and health index by Cornell Medical Index. The volunteers were also studied for their endocrine and metabolic status by the estimation of urinary corticoids and catecholamines in terms of urinary V. M. A., and the blood levels of glucose, proteins and cholesterol.

Results and Discussion

The volunteers practising the course of *Asanas* and *Pranayama* (5) when evaluated towards the end of 3rd and 6th months showed a trend of decrease in body weight, increase in vital capacity, a reduction in the blood level of glucose and cholesterol, and an increase in the rate of urinary excretion of corticoids and testosterone (Table 1).

Table 1 : Showing certain psychophysiological changes in normal volunteers practising certain *Asanas* and *Pranayama* for 3–6 months.

Observations	Initial	3rd month	6th month
Body wt. in lbs.	123.0 ±12.96	119.3 ±7.03	118.72 ±13.0
Vital Capacity in C. C.	3729 ±232	4372 ±336	4015 ±349
Fasting Blood Sugar mg%	74.6 ±5.26	64.17 ±8.42	63.07 ±10.86
Serum Cholesterol mg%	149.7 ±131.24	113.6 ±19.99	133.85 ±30.13
Urinary 17–OHCS mg/24 hrs.	3.65 ±2.02	5.80 ±3.01	10.30 ±
Performance quotient (P. Q.)	93.15 ±12.50	102.0 ±16.40	108.2 ±14.70
Memory quotient (M. Q.)	89.75 ±9.15	97.30 ±13.20	100.8 ±9.60
Health Index (CMI)			
(i) Physiological complaints	125	83	64
(li) Psychological complaints	67	31	30
Mental Fatigue Index	1.59	0.40	1.20

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Psychologically these volunteers exhibited an increasing feeling of well-being as per Cornell Medical Index (CMI), decreased neuroticism index as per Mandsley Personality Inventory (MPI), reduction in mental fatigue, and improved intelligence and memory quotients (Table 1).

Thus the present preliminary studies have shown several psychobiological effects of these practices on human volunteers. In the absence of direct evidences, it is difficult to explain how these *Hathyogic* practices produce such psychobiological effects. However, as also pointed out by certain other workers, these practices bring about a change in emotional and visceral functions and through them a change in the intellectual and somatic functions of an individual. Pressure changes working on various mechanisms may be responsible for many of the effects of these practices. As rightly pointed out, both positive and negative pressure changes take place which may influence circulation, visceral functions and feedback from visceral organs.

In *Hathayoga*, the *Asana* means to assume a certain bodily position in order to encourage various vital organs and endocrine glands to function more efficiently leading in turn to an overall development of the body and the mind.

A further study of these *Asanas* would show that these postures have been devised in such a way that besides many other desired effects they induce varying degrees of mental and physical relaxation. Thus the *Asanas* as practised in yoga systems are not only a form of physical culture but are also the methods of achieving perfect mental and physical relaxation. Therefore some of these *Asanas* may be practised as means of reducing the stress of the routine life.

In contrast to the common physical exercises, the yogic postures specifically influence various organs of the body rather than producing simple skeletal muscle actions. It is postulated that by virtue of these specific physical effects, the yogic practices rehabilitate various vital organs and make them functionally more competent. Due to similar effects various endocrine glands also get vitalised and endocrine functions improve which may reflect on an improved pattern of metabolic activities in the body.

As emphasized by Singh and Chhina, the practice of *Yogasanas* essentially tends to exercise and relax almost all muscles of the body to prepare it for a prolonged, steady, stable and coordinated activity without producing fatigue. Certain workers have classified these *Asanas* into three categories. One of these is meant only to relax the muscles of the body alongwith the mental relaxation. The second type of *Asanas* are meant for an improved coordination as well as exercise of different groups of muscles for maintaining steady postures through which different other rehabilitative effects are achieved. The third variety of *Asanas* are essentially meant to maintain a stable position of the body for a prolonged period usually needed for meditation, *Pranayama* or *Kundalini yoga*. This methodical use of muscles of the body for the control of physical, mental and visceral functions is unique in the yoga system and needs further kinetiological studies.

These are some of the speculations. There are no definite evidences to support these speculations. We are planning further studies on individual *Asanas* of different categories which may probably provide us data to examine some of these possibilities.

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Jour. Res. Edu. Ind. Med. April-June, 1982.

YOGA THERAPY—ITS SCOPE AND LIMITATIONS

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The ancient classical Yoga appears to have been developed as the method of control of mind and not as a method of therapy. Yoga therapy is an extraneous outgrowth of Yoga. However, in view of the works of medieval period on Hathayoga and the claims of many Yoga practitioners, it will be useful to evaluate the value of Yoga as a therapy. However, the present experience indicates the Yoga therapy may not be applicable to all diseases. It appears to be of limited value and can be of use only in functional disorders. Yoga therapy cannot be developed independently as it has no diagnostic methods of its own. Yoga therapy has to depend on the core science of medicine for its growth.

The great attraction towards Yoga that we observe today is due to its therapeutical aspect. Really speaking, therapy is not a field of Yoga in its proper sense. It is an extraneous outgrowth of Yoga.

Tracing the background :

If we look into the old Yogic literature, we do not find Yoga dealt with there therapeutically. In *Patanjali Yogasutras*[1], one of the ancient texts of Yoga, we get the word '*Vyādhi*' (disease) described as one of the disturbing factors of mind. But *Patanjali* does not deal with the therapeutics of Yoga anywhere in his aphorisms. His main emphasis is on suggesting various techniques for the control of mind.

Yoga does not seem to have been used as a therapeutical system in ancient times. Ayurveda was considered as the system of therapeutics.

In the works of medieval period and especially *Hatha*-yogic literature, we get a glimpse of Yoga having been looked upon from therapeutical angle. Yet this therapeutical nature of Yoga is different from what we understand today as yogic therapy.

In *Hathapradipika*[2], one of the authoritative texts of *Hathayoga*, published by *Kaivalyadhama*, Lonavla, we get a chapter on '*Doṣacikitsā*'. Almost similar description is found in '*Śāntarasanirdeśa*' by *Śārangdhara*[3] under the chapter '*Doṣopasargacikitsā*'.

But both these references concern about effective handling of the complaints or ailments that the aspirant of Yoga comes across as a result of faulty Yogic practices. Some of

* Principal.

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the diseases mentioned by *Hathapradipika*[2] are : chest pain, pain in the sides, back-ache, headache, asthma, hiccup, skin disease, partial blindness, tremors, blood infection, etc. The mode of treating these complaints is also completely different. In the words of *Svatmarama*, the author of *Hathapradipika*, the keynote of this treatment may be expressed thus :

यस्मिन् यस्मिन् यदा देशे रुजा बाधा प्रजायते ।
तस्मिन् देशे स्थितं वायुं मनसा परिचिन्तयेत् ॥
ह० प्र० V–9.

Or

यत्र यत्र रुजा बाधा तं देशं व्याप्य धारयेत् ॥
ह० प्र० V–23.

(Whenever any region is afflicted by disease one should contemplate upon the *Vayu* situated in that region).

Earlier references like *Devala*[4], *Markandeya Purana*[5], *Vayu Purana*[6] also indicate similar nature of Yogic treatment,

The author also recommends the diligent help of 'वैद्यशास्त्रोक्तविधि' meaning perhaps Ayurvedic medicine.

वैद्यशास्त्रोक्त विधिना क्रियां कुर्वीत यत्नतः ।
कुर्याद्योगचिकित्सां च सर्वरोगेषु रोगवित् ॥
ह० प्र० V–22.

(In all diseases the skilful physician should carefully administer treatment according to the methods prescribed by the science of medicine and also administer Yogic treatment).

Scattered references indicating the therapeutical nature of Yoga and the relation of Yogic practices with health, are found in various *Hathayogic* texts like *Gorakṣaśataka*[7], *Haṭhapradīpikā*, *Gheraṇḍa Samhitā*[8], *Śiva Samhitā*[9] and other unpublished literature. While describing a particular Yogic practice, these texts give its benefits in the form of effective removal of particular disorders as a result of the Yogic practice.

It is very difficult to accept in toto what is said or described in these texts, because very often the claims made are exaggerations. We should look to them as literary expressions and not as the statement of facts. For example, while eulogising the practice of *Uddiyana bandha*, *Hathapradipika*[2] says :

'उड्डियानो ह्यसौ बन्धो मृत्युमातङ्गकेसरी' ॥
ह० प्र० III–56.

meaning, that the practice of *Uddiyana bandha* overcomes death; or in case of *Mayurasana*

'बहुकदशनभुक्तं भस्मकुर्यादशेषं ।
जनयति जठराग्निं जारयेत् कालकूटम्' ॥
ह० प्र० I–31.

(*Mayurasana* kindles the gastric fire to the extent of completely digesting all the unwholesome and overeaten food and even poison).

Though the descriptions of Yogic practices in traditional *Hatha* texts suffer from the defect of exaggeration, nevertheless, they indicate their utility in maintaining proper function of the body and mind. It seems that some Yogic practices were traditionally utilized for removing the abnormalities in the function of the body and mind, especially by *Hathayogins*. But we do not find any attempt in these traditions to systematise Yogic treatment.

It is true that Yoga was not used for general treatment of diseases in ancient times. But in later period we do find references

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suggesting the use of Yogic practices as remedies on some of the disorders (*Satkarma Sangraha*)[10]. The beneficial effects of various Yogic practices can form a good basis for the development of Yogic therapeutics systematically, even if it did not exist. We know many examples of scientific invention which were originally not meant for specific purpose and yet we find their application in various fields. The same thing holds good in case of Yogic therapy. Even if the Yogic practices were not evolved for the specific purpose of treatment, these could be very well used for the treatment purposes, if found useful. For the formulation of Yogic therapy, we must consider some fundamental aspects of the therapy in general.

Fundamentals of therapy:

How the therapy or treatment should not be alike, is mentioned in the following quotation :

यस्य कस्य तरोर्मूलं येन केनापि मिश्रितम् ।

यस्मै कस्मै प्रदातव्यं यद्वा तद्वा भविष्यति ॥

(Root of any plant mixed with anything and administered to anybody would bring any results).

1. Any therapy to be called scientific therapy must be able to adequately explain the etiology of the disease and the rationale of appropriate treatment.
2. Any therapy has two aspects–diagnosis and treatment, the latter consisting of prevention and cure.
3. Any therapy to be effective must have an adequate *materia medica* of its own.
4. Therapy is a growing science and becomes rich on the basis of the clinical and scientific evidence.
5. Therapeutical experience should be such that it should be equally obtainable by and transferable to others.

Modern Movement of Yogic Therapy

Yoga was brought to the doors of common man during last 50 years. Therapeutical aspect of Yoga was prominently seen in the tradition of *Paramahamsa Madhavadas Maharaj* of *Malsar*. This aspect was popularised by his disciples in early 1920s. The scientific investigations of Yogic practices conducted by *Swami Kuvalayananda* brought new revelation and the first attempt was made to put Yogic therapy on scientific basis in 1924 when he published his scientific findings in his *Yoga Mimamsa* Journal[11]. Later, attempts were made by many individuals and organizations–Government and non-Government. Yogic therapeutical work is not only limited to the Indian workers and institutions but considerable work is being done outside India.

Recent Attempts for the Promotion of Yogic Therapy :

Considering the popularity of the therapeutical aspect of Yoga, Government of India, Ministry of Health had appointed a Committee in 1960 under the Chairmanship of *Dr. B. K. Anand* to evaluate the claims of Yogic therapy. The committee collected the relevant information from 71 institutions working in the field in different parts of the country and actually visited 19 select institutions. The report of the committee[12] states that for want of proper data and the personnel adequately trained to collect such data, it was not possible for it to evaluate the claims of Yogic therapy. It further adds that "Unless a scientific assessment of the

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patient treated by Yogic therapy is organised under controlled conditions, it will not be possible to evaluate the important therapeutic claims of Yoga."

Central Health Education Bureau, Ministry of Health, New Dethi, published a small book on 'Yogic Therapy-Its basic Principles and Method'[13] written by *Swami Kuvalayananda* and *Dr. S. L. Vinekar*, which adequately explains the rationale of Yogic therapy on scientific lines. However, its utility and efficacy in various disorders need investigation and collection of large data under controlled conditions.

"Central Council of Research in Indian Medicine and Homeopathy" came into existence during the last decade and it sponsorsed and encouraged research activities in indigenous systems of medicine including Yoga. Different research projects on Yogic therapy are working under the grant-in-aid schemes of new Yoga council (C.C.R.Y -Delhi). Other individuals and institutions are also working on the therapeutical research projects.

Present Status :

Referring to the fundamental aspects of the therapy, if we consider Yogic therapy as a separate science, we find that Yogic therapy has no diagnostic methods of its own. Yogic texts describe the diseases in terms of '*Dhatuvaiṣamya*' or *Tridoṣa* theory of Ayurveda. With the scientific advance, various sophisticated methods of diagnosis are available today and Yogic therapy can and should depend on the modern diagnostic facilities available without any prejudice.

Yogic therapy does not have an adequate *materia medica*. Very little scientific evidence about the utility of Yogic practices is available.

Hurdles in the way :

1. There is a dearth of devoted workers in the field of research in Yogic therapy, who have proper background of research and adequate knowledge of Yoga.

2. Even when some individuals and institutions having necessary background are working, the progress is very slow owing to the following reasons :

(a) Patients are not ready to receive Yogic treatment over a long period.

(b) As soon as the patient gets a little relief, he does not want to continue the treatment.

(c) Research worker is not able to maintain the follow-up because of the lack of co-operation from the patients. Sometimes, when the patients stay at a long distance, he is unable to give the required co-operation.

(d) The treatment of a particular disease does not remain specific.

(e) The techniques of the Yogic practices are also not uniformly used. Uniformity in the techniques of Yogic practices is an important factor in assessing the results of the treatment.

(f) Even when some research workers want to pursue any scientific investigation, many-a-time, financial assistance is not available.

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Efforts needed :

To clear the hurdles stated above, following steps should be taken :

1. To encourage devoted workers and induce them to take up research projects by providing some research scholarships.
2. To remove the difficulties of the institutions working in the field that have earned reputation for their work.
3. Patients generally come to Yogic therapy as a last resort especially for the chronic ailments. They should be provided free treatment over a long time if the results are to be achieved. This can happen at the place where hospital and research facilities are available. Such places should be given preference in carrying out research projects in Yogic therapy.

Much needs be done by way of research on sound lines in the fundamental and applied aspects of various Yogic practices individually or group of practices as a routine. The areas of research may be pointed out thus :—

(a) Fundamental research about the effects of various Yogic practices.

(b) Applied research in the utilization of Yogic techniques for the treatment of various disorders.

(c) Standardizing the techniques of Yogic practices.

(d) Formulating *materia medica* of Yogic therapy.

(e) Not the least important is the preventive aspect of Yogic therapy. No scientific data seem to be available regarding the efficacy of Yogic practices as a prophylactic measure. This aspect needs be studied, if Yoga has to attain the status of Therapeutics.

Scope and Limitations of Yogic Therapy :

Yogic therapy has a wide scope in the life of an individual not only to remove the ailments but also to maintain good positive health of the body and mind. It has a great potentiality to become a scientific therapy. Although sometimes we are not able to understand the rationale completely, there are a number of cases where unbelievable or miraculous results are obtained through Yogic therapy. Specialists in psychosomatic medicine and psychiatry, are showing good deal of interest in this therapy as it is felt that Yoga helps to eliminate psychophysical tensions which they find lingering on in their patients even after their recovery from mental and nervous disorders. Many medical practitioners now believe in the contribution that Yoga can offer in the field of physiotherapy and rehabilitation of the patients suffering from chronic disorders. It seems that Yogic therapy works on the principle of establishing homostasis in the organism as a whole. But as yet, Yogic therapy has not reached a stage to throw light on the psychophysiological mechanism involved in the treatment and to cover within its compass a long list of disorders, although sometimes exaggerated claims are made by some enthusiasts. To be modest in stating the claims of Yogic therapy, we should say on the basis of the present knowledge that it can be effective only in some of the chronic, functional disorders. It does not seem to be useful in all the diseases, or the disorders of acute and structural nature. This should denote, in a nutshell, the scope and limitations of the

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Yogic therapy. On the lines of Sir W. Osler we may also say that "we should not bring the art of Yogic therapy into disrepute by quack-like promises".

Some Suggestions :

In the end, it should be pertinent to make a few suggestions for the promotion of the Yogic therapy as a scientific therapeutics.

1. Since research in Yogic therapy demands patience and perseverance on the part of the devoted workers in the field, such persons, institutions or organizations should be liberally helped technically and financially.
2. Apart from Central organization which may be responsible for giving financial assistance, some permanent research units be established in different parts of the country.
3. Frequent symposia and seminars should be held for the exchange of information gathered by various institutions and individuals in their work.

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YOGA AND CORRECTION OF CRIMINAL BEHAVIOUR : A PRELIMINARY REPORT

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Yoga, the Indian heritage is receiving a worldwide attention. Its various specialized concepts are being scientifically explored to benefit suffering humanity. Yoga explains the entire human behaviour on the bases of five inborn tendencies or attitudes called *Kleshas*. These tendencies are always at the root of conflict and tension. The aim of Yoga is to control these *Kleshas* reducing their influence on human mind. Criminal behaviour is atrributed to these *Kleshas*. Keeping this in view, and the preachings of Yoga in totality, the effect of a schedule of Yoga teachings and practices has been tried to modify the behaviour of a group of criminal convicts in the Central Jail at Thane. After a 12-week of course, encouraging improvement in the behaviour of the participants to the course was noted.

An ever-increasing interest in Yoga and its age-old techniques all over the world during the past two decades has been one of the most remarkable phenomena of our times. Maharishi Mahesh Yogi, the modern preacher of Transcendental Meditation, has, no doubt, been the foremost among those who gave rise to this new wave of interest in Yoga. Much of research activity has been stimulated recently in connection with the application of Yoga to the problems of the common man. Correction of criminal behaviour is one such problem.

Yoga explains all human behaviour on the basis of five inborn tendencies or basic attitudes, which are called '*kleshas*', because the net result of them is pain or *klesha*. These innate tendencies are : ignorance (*avidya*), ego feeling (*asmita*), likes and dislikes (*raga* and *dvesha*), and fear of death (*abhinivesha*). *Patanjali*, the well known ancient author of Yoga has described them in detail in his *Yogasutra*. The behaviour of every living being is pervaded by these five inborn urges. Control of these *kleshas* gives rise to normal behaviour. Criminality is a result of the *kleshas* going out of hand. It is argued that misery (*dukkha*) in human life, or rather all life, is a product of ignorance of the nature of reality and ignorance of the working of the human mind, which in turn gives rise to excessive ego feeling of the individual and the community, and the strong likes and dislikes associated with it. This is what gives a criminal turn to the struggle for existence, by creating envy, war and exploitation.

The *Kleshas* are at the root of the conflict

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and tension which is so widespread in human relations today. All our quarrels, violent acts, and misunderstandings between individuals, families, parties, societies, nations, and groups of nations, emanate, in the final analysis, from a lack of control over our animal instincts, which, in Yoga, are called the *kleshas*. Criminal behaviour, according to Yoga, is not characteristic of the criminals or the convicts alone. The seeds of criminality are present in all of us. There is no escape from them unless we learn how to bring the elements of criminality in us under control.

The practice of Yoga is aimed at controlling the *Kleshas*, reducing their influence on the human mind progressively, and ultimately destroying them completely. *Kleshas* are often called 'the impurities of the mind' (*chittamalas*). They colour the understanding of reality and distort human behaviour. When the mind is divested of the *kleshas* it becomes clear and thus capable of having true knowledge (*vidya*). A mind having *vidya* is by nature completely devoid of criminal behaviour. That state of understanding is called *viveka-khyati*, wherein the *Kleshas* cease completely to have any binding or distorting effect. To achieve that state is the ideal or goal of Yoga. Although it is next to impossible for most of us to achieve the state of *viveka-khyati* because of a rather poor interest in the practice of Yoga, even a little practice of Yoga does have its effect on making the mind clear and peaceful. All the eight parts of Yoga described by *Patanjali* play an important role in overcoming the *kleshas*, and thereby reducing criminal behaviour. These eight parts which form the Yoga discipline are quite well known to students of Yoga. The utility of each one of them towards modifying and correcting criminal behaviour is briefed below.

The first two parts are called *Yama* and *Niyama*. *Yama* means control of the mind through abstinence, by avoiding or giving up five major ills which distort human behaviour. These ills are : violence (*himsa*), falsity (*asatya*), exploitation (*steya*), sexual excesses (*absahmacharya*), and possessive nature (*parigraha*). To avoid them consists of a negative discipline. It amounts to the manifestation of the opposite of these ills. These five ills form the very essence of criminal behaviour. If we visit any jail and examine the convicts therein as to what brought them there, it will be found that one of these five ills was the cause of their criminality. The discipline of *Yama* cuts at the root of these ills by cultivating *ahimsa*, *satya*, *asteya*, *bramahcharya* and *aparigraha*.

Niyama forms a more positive discipline, that of cleanliness of body and mind (*shaucha*), contentment (*santosha*), practising austerities (*tapa*), studying good thoughts (*swadhyaya*), and faith in God (*Ishvara-pranidhana*). Anyone having these qualities will evidently be worlds apart from criminal behaviour.

The next two parts, namely, *Asana* and *Pranayama*, have more physical elements than the mental. Of course, we can not categorise any practice of Yoga as merely physical or merely mental. The influence of the body on the mind and vice versa was known in Yoga since very early times, although this fact is perhaps little known to many of our Yoga enthusiasts and Yoga teachers of the present day. *Asana* and *Pranayama* are predominantly physical in their technique, but their effects

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definitely have mental components. They provide a sound body for an abode of the mind. They have a relaxing effect on the muscles a soothing effect on the nerves, and a pacifying effect on the mind.

The fifth part of Yoga is called *Pratyahara*. It involves withdrawal of the mind from the objects of enjoyment, which is partly physical and largely mental. These five parts are called the external aspect of Yoga, as they come first in the practice, and unless they are mastered, one can not enter into the inner realm of Yoga, called its *antaranga*. It comprises three parts, respectively called *dharana*, *dhyana* and *samadhi*. The last one is beyond the reach of most of us, but *dharana* and *dhyana* can be availed of if there is sufficient keenness of interest.

A question arises as to which of these practices of Yoga could be given to actual criminals so as to modify their behaviour. We had an opportunity to tackle this important problem. We took up a project in the Indian Yoga Society. With the permission of the Superintendent of the Central Jail at *Thane* near *Bombay* we started taking weekly Yoga classes of the Indian Yoga Society on the *Dassera* day in 1976. 80 convicts joined these classes voluntarily. Each class lasted about 90 minutes, in which, after some devotional *bhajans* for creating proper atmosphere, a talk was given for 20 minutes to explain the basis of Yoga practices, and then actual practice was given by four instructors. The practices included in course were a few simple postures to influence all the organs and functions of the body (30 minutes), *pranayamic* breathing (10 minutes), relaxation (10 minutes), and meditation (15 min.).

It was very interesting to note the fact, that none of those who joined the course wanted to leave it. The course lasted 12 weeks, at the end of which the author personally addressed the convicts. It was thought better to give further training in Yoga to a few selected convicts so that they could themselves conduct classes for the inmates of the jail. Thus 13 persons out of the batch of 80 were selected for the Yoga Orientation Course of the Indian Yoga Society. This course included more of theory and practices, and continued for one month. All the participants were given a written and practical test at the end. All of them passed and were given certificates of the Society in a special function.

A remarkable change was observed in the attitudes of the participants. No quantitative measurements could be taken, but observations by the jail authorities revealed that clashes between the convicts were remarkably reduced, and pessimism, emotional outbursts, and irritability were conspicuously lowered. An important observation of the authorities was that a feeling of self-confidence, co-operative attitude and poise was evident in the behaviour of those who completed the Yoga Orientation Course.

Encouraged by these findings, the jail authorities transferred some of the trained convicts to other jails, where regular Yoga practices have now become a routine. We propose to take up further controlled experiments in the field to assess the utility of Yoga practice as a correctional tool. But that will be possible only if the authorities in the Government and its departments come forward to recognise the utility of Yoga and help wholeheartedly for achieving desired results.

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VIVEKANANDA'S RAJA YOGA AND MODERN SCIENCE

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Swami Vivekananda's *Raja Yoga* is famous for its commentaries on the Yoga Sutras. However, what is not realized is the fact that it is a scientific treatise on natural phenomena. The emergence of the physical world, the condensation and manifestations of energy, the continuity of the energy field, the control of energy through *Pranayama* are all propounded with great clarity by the Swami. Beyond the pale of instinct and reason is the supra-conscious awareness wherein the nature of Reality is experienced. The Swami was a living example of attaining this state wherein he had not only not contradicted the so-called modern scientific knowledge, he had even predicted the nature of Reality.

More than eighty years ago, Swami Vivekananda hit the headlines in America during the World Congress of Religions at Chicago. He represented no single religion, no formal organization, no national interest. Yet his speech was the most quoted and the Congress itself was a success largely due to his talk. People crowded at his addresses and the universal brotherhood he preached transcended all religions and touched all peoples at the core of their humanity

More than his universal message, the striking facet of Swami Vivekananda's writings and expressions are the scientific content and his deep understanding of nature and natural phenomena. When modern physics was not even talked about, when quantum nature of particle was still undiscovered, when even wireless transmission was not known, the Swami predicted their existence. When one reads these writings after eighty odd years of accelerated scientific progress with astounding advances in outer space, atomic physics and relativity, still the freshness of the thoughts come through without as much as one utterance which may be construed 'unscientific'. The profound knowledge of this Yogi has indeed stood the meticulous test of our age of scientific ransacking and the Swami's writings have come out as an outstanding example of intuition of a Liberated One. I choose to limit my presentation to a small commentary by the Swami upon Patanjali's Yoga Sutras; this is his renowned book on Raja Yoga. I choose this because Raja Yoga is the pinnacle of all Yogas; because the Swami's writings on this are so clear and perceptive; and because I have personally gained so much by reading this.

The Swami opens his remarks with a brief introduction to the acceptance of scientific methods by all people since objectivity

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and experience of truths have a universal appeal. Now, is religion based on experience? Indeed, yes. All great religious teachers talked of their own experiences, be it the Buddha, Jesus or the Rishis of the Yore. However, the practised religions of today seem to imply that this experience is not possible in the present era. However, Raja Yoga preaches no creed; it only claims and teaches the method of reaching the Ultimate Reality. Thus, Raja Yoga is no religion, it simply instructs you to look into yourself and to realize the Self.

Observing the inner world of one's own self is no easy matter. Here the mind is at once the observer and the observed. The teacher and the taught are the same; the tool and the object are the same. The mind must be turned inwards, concentrated and observed to know its own nature. The mind must be disconnected from all material influences, should be made to shine in its own inner light and be observed. The material influences, thoughts and actions colour the mind and once there is cessation of these agents, the mind is caught by mind's own eye in all its glory. Yoga teaches this stilling of the mind. Since the nature of the self is the same in all individuals, the observation and experience of this self will lead people away from personal prejudices and vanities to a life of peace and love for all.

At this stage, the Swami comes out with an astounding and yet profoundly true statement : The finer is always the cause, the grosser, the effect. The mind is the cause of health and ill-health of the body. Now, we know from physics that if you want to understand the gross nature, you must look into the microscopic, the atomic and the subatomic. From the knowledge of the fine, we can predict the gross behaviour. Also, the psychologists of today tell us that diseases are mostly, if not all, psychosomatic, meaning that mind and body have a strong interaction and that many common diseases are indeed caused by the psychic influence on the body. The Swami's statements on the subject precede modern psychological ideas by at least half a century.

The physicist and the Yogi have the same ultimate goal—that of understanding nature. The physicist starts with the study of the external reality and generalizes, while the Yogi starts with the internal reality and generalizes. Again, the Swami says with insight, that carried to the extreme, both are right since, in nature, there is no such division as internal and external. The externalist and the internalist are destined to meet at the same point when they reach the ultimate of their knowledge.

The pinnacle of pure scientific thought is, however, reached in the Swami's writings, when he elaborates the concept of Prana. The whole of universe is divided into Prana which is energy or manifest power and Akasha which has material form. Akasha is all that we see of the material universe such as the sun, the moon, the plants, animals and the human body. At the beginning of creation, there was only Akasha. At the end of each epoch, all form and energy become Akasha and again the worlds are formed out of this molten pot of Akasha. Prana is the energy that activates the Akasha. The unseen energy in a thought, the forces in a gravitational or an electromagnetic field are indeed Prana.

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In the physics of today, we call these entities matter and radiant energy. As is well known now, these two are convertible into each other, namely, matter into energy and energy into matter. In the most widely accepted theory of modern cosmology, the Big Bang theory, it is stated that the worlds are formed through a gravitational collapse. An intense field is produced, all material world dissolving into this primordial atom. Then, the expansion takes place, the radiant energy is resolved into matter, the worlds are formed and a stage of expansion takes place. The sum total of all forces in the universe, mental or physical, comes out of this energy which goes by the name of Prana. He asks the classical question for the doubting minds 'when there was neither aught nor naught, when darkness was covering darkness, what existed then ? That Akasha existed without motion.' The Prana was lying dormant at the start of each cycle of evolving universe. The potential energy of the start is slowly converted into the various forms and manifestations as the cycle progresses. A more precise understanding of cosmological theory is hard to come by. These statements of the Swami have come half a century before the Big Bang theory was formulated.

The knowledge and control of this Prana is achieved through Pranayama. This is the most profound goal to be attained through the practice of Yoga. The more subtle a form is, the more Prana there is to it. There is an innate balance between energy and matter; between potential and kinetic energy; between Prana and Akasha. Thought is subtle but unconscious thought is subtler still. Reason, contemplation, etc. are grosser manifestations of Prana. The mind can attain the highest, most profound and extremely subtle plane and that is the superconscious state known as Samadhi. In this state, the Prana is all-pervading and intensively manifest, opening up the flood-gate of suprasensory awareness regarding the nature of universe.

Another important statement of the sages which reflects the scientific spirit of today is the enunciation 'Yatha Brahmande, Tatha Pindande'–as in macrocosm, so in microcosm. The Swami scissilely points out this basic scientific fact that 'there is no real difference between the table and me'. The table has a different form, different packing density of the material Akasha and the radiant Prana. But basically, there is a unity between the different types of matters in the universe. We know now, even after eighty odd years of the statement of this basic truth, no scientific advance has contradicted it. Indeed, most of the science practised today is aimed at proving this under various conditions. The physicist is unravelling nature having basically same components of matter; the chemist is trying to understand the world through principles of motion and distribution of chemical substances. The biochemist looks at and searches for physico-chemical nature of life. But the fact remains that ultimately there is an enormous unity underlying the physical and chemical principles that form all kinds of matter. This is implied in the above statement of similarity between macrocosm and microcosm.

Matter keeps changing continuously forming now one substance, now another. There is a constant flux, a flowing together and dissolution of constituents of matter; and this change is seen in the forms in and

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around us. The sun will one day dissolve into space around it, the moon may fall and become one with the earth. Minerals give up their inner energy and take another form and the energy contained in the body of a human dissolves and takes other forms. Beyond all these vibrations of matter, beyond the subtlest vibrations, there is the Supreme Self. The realisation of the unity in all beings and in all matter–not the knowledge of the mathematical equivalence, but the identification and experience of it—is the realisation of the Self. And the aim of all Yoga is to unfold a path towards this goal.

Then the Swami goes on to explain the physical basis on which this Prana can be controlled. Breathing is a gross manifestation of Prana but breathing is not necessary for the existence of Prana. In fact, it is Prana that controls breathing and not the contrary. We know now of people—there are scientific experiments conducted on them—who can stay in glass cubicles buried under the earth. For these people though the breath is suspended still Prana has remained animating the body. The metabolism is greatly reduced if not totally stopped; there is no need for oxygen of the air and food and water for sustaining the body. Hence Prana is beyond all this It is subtler than breath and it is able to sustain life as we understand it.

The Prana controls the breath and Pranayama is, at the gross level, controlling the muscular power that moves the lungs. By moving the muscles of breathing, we get at the Prana. Slowly, all other actions of the Prana comes under control. As we breathe, the whole body is filled with Prana. And when Prana enters the various recesses of the body, its touch drives away all misery and disease of the body. This Prana can flow from one person to another. Again, we know the truth of this statement when we closely observe the mysterious workings of touch healing, magnetic healing and other so-called psychic healing techniques. By a mere touch, a person can let his Prana flow into another person, thus ridding him of his diseases. This transfer of Pranic energy can be effected from a distance too. But distance implies nothing here since we are in a continuous flux of Prana around us. Probably we can think of a psychic-healer, or more familiarly a psychiatrist, listening to a patient and by the mere nod of his head cure a diseased mind and hence the disordered body.

There are other manifestations of this Pranic outflow in individuals who have practised control over it. The great prophets of this world and those in whom this energy has been awakened have reached sudden heights of creative ability, artistic and poetic expressions of unsurpassed beauty. The Pranic energy that usually pervades the lower drives of humans has suddenly uncoiled from its fetters and reaches out to the entire body and sustains the physico-chemical processes. Raja Yoga teaches the path of reaching the awakening of Prana in the body and its course to the higher levels of mind.

Can Prana be linked to nerve impulses or to any other psycho-physiological entity in the body ? It is too early in this scientific game to predict this identity for Prana. But the oriental thoughts in different regions have arrived intuitively at similar currents flowing through the human body. It is possi-

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ble that there is a close link if not a complete identity with life currents depicted in chi energy, and Prana, A detailed anatomical position of vital points along the flow of chi energy of acupuncture is given in many standard books on the subject. Perhaps a prolonged search along the lines already carried out in finding acupuncture points and energy flow medians may indicate the exact nature and content of Pranic energy.

The means of controlling Prana is through sustained practice of Yama, Niyama, Asanas and breathing practice. Yama and Niyama are social and personal practices of non-killing, truthfulness, nonstealing, cleanliness, austerity, study and self-surrender. These are the basic injunctions in all ethical practices. Asanas are those that stimulate the nervous system for stable and sustained action. The postures are defined to obtain a global response of the entire body towards optimal functioning. Thus, several asanas are appropriate to stimulate the centres that control blood pressure, heart rate, hormonal secretions and various important centres that maintain a healthy internal environment. Thus, asanas are designed to give a good basis for carrying out the long and arduous task of reaching the Ultimate. Pranayama, in practice, consists of maintaining a rhythmic breathing, again stimulating certain important centre within the breathing apparatus of the human body. A controlled breathing has salutory effect on the awareness of the individual and takes the person beyond the physical to the psychic planes.

The next step in Yoga consists of Pratyahara which is controlling the mind and not allowing it to join itself to other centres. The next higher orbit to this is Dharana which is 'holding the mind to certain points'. The chitta or mind stuff is thus channellized to observe intensely certain points of the body only, in complete exclusion to others, even in some modern psychosomatic therapy but concentrating on the body parts and energy centres without corresponding body awareness and control cannot be very effective indeed. However, when properly practised, the Pranic force enters the region under concentration. For example, imagine a lotus as the centre of the heart bathed in effulgent light. The concentration on specific energy points kindles and stimulates the Prana and enormous energies are released in the process.

The next higher reach in Raja Yoga is Dhyana. Out of concentration on many centres–both physical and energy centres—we narrow down to one centre. A slow luminiscence of this centre fills the whole being—this energy centre provoking and radiating energy to the entire being—nay, the entire space around the person in an electric manner, much the same as an antenna radiates energy to the neighbourhood. If you go near such a person, you already feel the radiation, the intense tranquility and serenity that is ever present.

All these steps are, however, at the level of conscious awareness. But below this tip, lies a vast, unexplored territory of unconscious thoughts and actions. The Swami maintains–again eight decades before confirmations by modern research in Yoga and advent of biofeedback—that even unconscious acts such as the heart beat can very well come under conscious control. The work at conscious plane is always accompanied with the feeling of egoism. However, at the

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unconscious plane, there is no involvement of the ego. Again, beyond both these states is the superconscious state called Samadhi. Here also, the awareness is uncontaminated by the ego. In this state, a total awareness is reached and suprasensory perception is achieved. Metaphysical and transcendental knowledge comes to the person. Here is then the real Yogi—an inspired person, a Prophet who is able to predict and direct the course of events in the universe.

The three states—instinct, reason and superconscious; or unconscious, conscious and superconscious—in a continuous spectrum of awareness of the human mind. Instinct develops into reason and reason unfolds into this state of Samadhi. And superconscious awareness never contradicts reason. The Swami categorically states that if it does contradict reason, reject it, for it is not really superconscious state that is contrary to reason. 'Inspiration always comes to fulfil reason and is in harmony with it.' This should be considered by all those interested in the conscious and supraconscious states of awareness.

Looking back then at the works of Swami Vivekananda and especially the writings on Raja Yoga–and looking back at it over a span of eighty years of explosive human knowledge in Natural Sciences, it is obvious that the Swami has through intuitive thought and supraconscious perception, enunciated the external Truths of natural and cosmic laws. 'The goal of each soul is freedom, mastery—freedom from the slavery of matter and thought, mastery of external and internal nature.' And, indeed, all knowledge leads to freedom. A proven method of acquiring intuitive knowledge is by controlling the senses, directing it to a specific focus and meditating so that the perception gets finer. Then, out of stillness of the ocean of Self, out of quietness of the eye of storm, emerges knowledge transcending logical perception. This is the message and Swami Vivekananda says this, not lacking in understanding of nature but from a supraconscious awareness of it.

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NEW STRATEGY FOR MENTAL HEALTH SERVICES OF THE RURAL MASS

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The crucial demographic facts pertaining to the distribution of types of mental illness in different socio-economic strata have been cited on the basis of which a logic to at least partly meet the Alma Ata declaration of "Health For All by the Year 2000" has been evolved. Thus it has been deduced that all the registered medical practitioners, particularly the traditional Ayurvedic physicians, should be imparted three months' courses in the use of major tranquilizers, antidepressants and E. C. T. to treat psychoses, which are the real mental illnesses. Regarding promotion of mental health, which is realistically related to our another demographic variable, namely, the rural-youth unemployment, it is argued that proper areligious preaching of Gita's Karma Yoga and modal social psychological projects will mould the unemployed youth into a mentally healthy "Karma Yogi" similar to the enterpreneurial personality described in modern psychology. Psychological experiments done in India have been cited to convey the psychological know-how that goes into the shaping of a Karma Yogi—Enterpreneurial, Task-oriented Personality".

The role of indigenous system of medicine, particularly Ayurveda and Yoga can be very distinctive and unique due to the special demographic characteristics of our population. This is the thrust of this paper that, breaking some traditional professional limitations imposed by a foreign system of medicine on the growth of our own system of medicine Ayurveda, the Ayurveda can and should emerge out to meet the unique challenge of our national demographic variables. In our noble effort to help our poor mass, we should not be bound by the suffocating restrictions attempted on us by the alien system of medicine.

The overriding facts of demography pertaining to our population are : 1. sheer number of patients due to exploding population, 2. illiteracy and poverty of the mass. This is a universal fact of community psychiatry that the lower socio-economic strata have amongst themselves more of psychosis (Hollingshead and Redlich, 1958). Given the two facts, namely, the population explosion creating lop-sided doctor-patient ratio, and the presence of psychosis as the major mental illness of our poor population, we can evolve a befitting and rational health delivery system. Fortunately, in this context, we can be benefited by the fact that treat-

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ment of psychoses is a fairly standardized procedure. There are a limited number of important psychoses and limited number of medicines for them.

Tying up together all these facts this is herewith proposed that all registered medical practitioners, particularly the Ayurvedic physicians should take up the task of treating major psychoses by means of major tranquilizers and/or anti-depressants. They are the physicians who will come early in contact of the patient in the village. Refresher courses should also be organized to teach them management of side-effects of the anti-psychotic drugs, and also in the use of Electro Convulsive Therapy (E. C. T.). Facilities for muscle relaxant and oxygen should be provided at the primary health centre as desirable preparation for the E.C.T. This is not as difficult as it may sound. So far as the treatment package of psychoses is concerned, an internee in State Govt. mental hospital easily learns it latest by his third month of training. It should also be noted in this context that the proposal advanced herewith is not so daring as it sounds, for a related reference in this context is already there, namely, the W.H.O. Project, 1975-81, called "Strategies for Extension of Mental Health Services in Rural Community" organized by Prof. Wig. In the Project, they trained the village health workers in the detection of three major mental illnesses, namely, epilepsy, schizophrenia, psychotic depression and their treatment by these corresponding medicines. There is advantage in the above-proposed strategy for the virtually impossible task of training the registered medical practitioners in the identification and treatment of psychoneuroses, personality and character disorders is by-passed, which is a realistic step because the identification and treatment of psychoneuroses, and personality and character disorders is a complex and difficult job.

Shifting now to the completely other side of the coin, firm strategy relevant for mental illness to the possible strategy relevant for the promotion of mental health, we have to keep in mind two basic givens. (1) Job of mental health is distinctly different from the job of mental illness. (2) Any strategy that has to influence the minds of the mass has to be in tune with the cultural and religious traditions, beliefs and superstitions. Taking up the task of mental health promotion in the face of lack of unanimous definition of mental health, we can define the scope of mental health as prevention of mental illness and promotion of emotional happiness and interpersonal adjustment satisfying the individual's needs. The issue of primary prevention of mental illness is made virtually impossible due to lack of definite knowledge about the causes of mental illness. However, the causes of some psychosomatic illnesses such as essential hypertenision and psychogenic headaches are now reasonably well known. It is now becoming increasingly evident that most psychosomatic illnesses can be prevented by changing one's life-style in the direction of moderation or "middle path" of Buddhism, for example, and regular practice of *Āsanas* and *Prāṇāyāma*.

Shifting now to the issue of promotion of emotional happiness, the difficulty lies not in terms of lack of technology but in the fact that the emotional needs and problems of each individual are different. Given that there is no chronic unresolvable emotional

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problem which the individual himself can not handle whereupon a qualified psychotherapist will be needed, the emotional health in everyday life particularly in the villages can be promoted, I think, by popularizing the principles of *Karma Yoga* spread all over in Gita. In the ancient time before industrialization the job that the village youth would do was already pre-set by what his fathr was doing. The village artisan would teach his skill to his son, and the essential element of this "father-teaching-his-son" was : Pride/Joy in the job well done. A job well done was not merely a wage earning strategy but an entertainment by itself. Personality thus formed could be called a *Karma Yoga* which is well equatable to the concept of enterpreneurial personality in modern psychology. The enterpreneurial personality is task-oriented rather than power oriented, power motivated, money oriented, social recognition oriented or, in other words, consequence/result oriented. In terms of achievement motivation the enterpreneurial personality, because of being free from the bondage of result-oriented pay-off motivation, sets moderately high achievable goals whereas the power or result-oriented personality sets up for itself impossibly high goals mainly for the neurotic fantasy reason of having to impress the people around. It is obvious which of the two life-styles promote emotional happiness, work satisfaction and mental health. The task oriented personality will be absorbed in the work thereby self-transcending his individual problems. Not that only Einstein and Newton were such work-adjusted personalities, but, I speculate, that in ancient India most of the village craftsmen, artisans, masons used to enjoy this work infatuation. Their reward was not derived so much from end-result or consequence of the work such as money but from the intrinsically self-reinforcing quality of the job well done. These are exactly the qualities of a *Karma Yogi*.

The crucial question then is : Can we shape up a *Karma Yogi* out of an unemployed illiterate poor village-youth. I firmly believe Yes, this is feasible. I cite as example the experiments in social/behavioural engineering in this context the second one of which was conducted by the psychologist Mc. Clelland and published as an article titled "Managing Motivation to Expand Human Freedom" (McClelland 1978). The first experiment performed at Barpali district involved one million U. S. dollars and 10-year time period, 1962-71. The goal was lifting up the living standard of the entire district. Speeches were delivered. Information in health-maintenance, family planning, and some curative medicine to eradicate endemic diseases were provided. Villagers were taught how to dig wells and build latrines to improve public hygiene. Special corps of village workers was evolved to train villagers in the use of fertilizers, insecticides, and better vegetables and poultry. Even leather and weaver cooperatives were started for the benefit of the villagers. At the end of 10 years, follow - up assessment was done. The assessment results were : The wells were not in use, cooperatives liquidated, better farming methods given up, family planning had failed even worse than in the neighbouring area. Compared to this is the second experiment involving McClelland's participation. The goal of this second experiment was more modest and specific. The money involved was only U. S. dollars twentyfive thousand, and time period was forty days. Specifically,

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the goal and procedure involved training of a limited number of youths, fifty in number from Kakinada in Andhra Pradesh, in various small scale industries such as scooter repairing. Follow-up assessment was done after two years. The results were visibly there : Compared to the neighbouring area Rajahmundri, the employment rate in the whole Kakinada was now more; there were more industries, a sustained improvement in the living standard of at least one thousand families, Moreover, the trained youths invested more money expanding their business and gave job to two times more number of unemployed youths in their business than did the untrained business-men in *Kakinada*.

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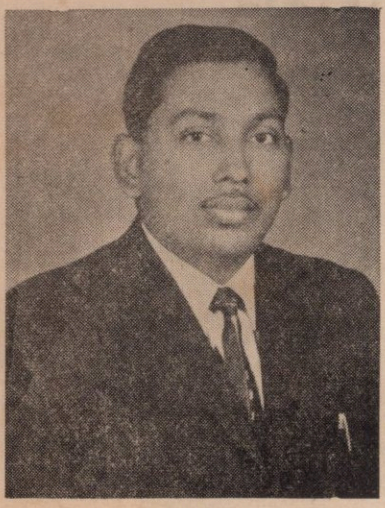

Dr. Vivekanand Pandey,
A. .M.S., D.Ay.M., Ph. D.
Director, Central Council for Research in Ayurveda & Siddha,
Ministry of Health & Family Welfare,
Government of India, New Delhi.

The Journal of Research & Education in Indian Medicine congratulate Dr. V. N. Pandey, (our Hony. Consultant Editor), on his appointment as Director of C. C. R. A. S., New Delhi.

Dr. Vivekanand Pandey was born on 2nd June, 1940 in village *Dhaurahara* in Varanasi District of Uttar Pradesh. He obtained A. B. M. S. Degree with merit from the College of Medical Sciences, B. H. U. in the year 1962. He did his Three-Years Post-Graduate Degree Course in Kayachikitsa at P. G. I. M, B. H. U. in 1963-66 and Ph. D. (Ay.) in 1975 at Institute of Medical Sciences, B. H. U., Varanasi.

In addition to his academic activities, he was appointed as Clinical Registrar in October, 1966 and was promoted shortly as Editorial Secretary of the "Journal of Research in Indian Medicine", at B.H,U., Varanasi, from March, 1966 to December, 1970. He was directly appointed as Assistant Director (Ay) in Central Council for Research in Indian Medicine & Homoeopathy. He had also worked as Deputy Director (Technical) in the Hqrs. Office of the C. C. R. I. M. H., and as Director, Central Research Institute for Ayurveda, New Delhi. Dr. Pandey has overcome various tests of hardships in rising to a promising career in the field of his study. His work on evaluation on "Effect of *Kutaki* on patients of Kamala (Jaundice)" has received appreciation in the medical world.

He has been examiner of Graduate, Post-Graduate and Ph. D theses examinations of various faculties and universities of India. His participation in the various Seminars. Symposia, Table and Panel discussions has been matter of consideration. During his Research/Academic career, he has published 35 research papers and made rich contribution by his book "A Hand Book of Common and Ayurvedic Home Remedies" published in 1978 by C. C. R. I. M. H., now, C. C. R. A. S. Now he has taken over as Director of the Central Council for Research in Ayurveda and Siddha.

The scientific research in the field of Indian Systems of Medicine under the aegis of Central Council for Research in Ayurveda and Siddha, and the able, dynamic and hard workmanship of Dr. V. N. Pandey will surely achieve its goal which has been a victim of suppression, stagnation and distortion for centuries. First time in the history of Independent India, a man with Ayurvedic qualification has been appointed to this post with concurrence of Appointment Committee of Union Government of India. We wish him all the success.

G N. Chaturvedi
Chief Editor

Suresh Kumar
Editor

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THE JOURNAL OF RESEARCH & EDUCATION IN INDIAN MEDICINE

Dr. Suresh Kumar *(Hon. Editor, J R. E. I. M.)*, Deptt. of Kayachikitsa, I. M, S , B. H. U., Varanasi, presenting a packet of inaugural issues of the J urnal to Dr Sombhong Kutranon, Regional Advisor on Community Health Services, Wor'd Health Organization, on 20th Feb. 1982. Prof. K. N. Udupa *(Senior Chief Editor, J. R. E. I M.)*, Rector, Banaras Hindu University, Dr. M. L. Dwivedi, Former Vice-Chancellor, Gujrat Ayurved University and Prof. J. Nagchowdhary, Director, Institute of Medical Sciences Banaras Hindu University, look on sitting on dais (Left to Right).

Dr. Sombhong Kutranon, Regional Advisor on Community Health Service, World Health Organization released the Inaugural issue of "The Journal of Research & Education in Indian Medicine—An International Quarterly, in the inaugural function of "The Conference on Contribution of Practitioners of Indian Medicine towards Primary Health Care", held at the Faculty of Indian Medicine, Institute of Medical Sciences, Banaras Hindu University, Varanasi-221005, (India) on 20th February, 1982. The Conference was attended by over 200 delegates from India and abroad.

Senior Chief Editor Prof. K. N. Udupa, (Rector, B H.U.) Chief Fditor, Prof G. N. Chaturvedi, some of the Consulant Editors, and members of Advisory Editional Board graced the occasion.

Later, Dr. Kutranon in his message conveyed "I must say I have found the journal to be most informative and interesting and I am sure it will go a long way in achieving its objectives of encouraging an exchange of ideas and information globally among the workers of different disciplines who are focusing their attention on important aspects of the inter-relationship between various systems of medicine, like Ayurveda, Unani, Yoga, Siddha, Naturopathy, Hemeopathy, Western systems of medicine and allied socio-medical sciences." I look forward to receiveing copies of the Journal regularly.

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